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EDITORIAL.

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PARIS, August 15, 1908.

PROLAPSUS OF THE RECTUM.—*Prolapsus of the Rectum* is a frequent accident met with in all species; but horses, swine and dogs are probably the animals for which the care of the surgeon is most required. In the pages of our REVIEW I have had opportunity to relate cases among the items of our foreign Reviews. A general résumé of the various treatments which have been recommended is presented in the *Journal de Zootechnie*, by Mr. L. Auger, which considers the subject up-to-date. Let us look into it.

There are two forms of prolapsus; one partial or mucous, in which there is only protrusion of the mucous membrane, which, after gliding over the muscular coat, has appeared outside, and another, total, where the rectum is turned inside out, finger-glove fashion. The former is a mild accident, demanding generally a treatment of no difficulty; while, on the contrary, the latter, much more severe, is, in some instances, difficult to reduce, and principally to keep reduced afterward. To the point of view of treatment, it is proper to observe the distinction thus established between the two forms of the disease.

* * *

The treatment of the mucous prolapsus is simple: *reduction*, and if this is impossible, *resection*.

In some cases no interference is necessary. Cases of recovery are recorded where free and repeated washings of the

protruding organ, carefully avoiding all traumatism and allowing a light diet, were only necessary. Yet in small species, dogs especially, it is necessary to interfere as it is impossible to prevent traumatism of the mucous, which will promote violent expulsive efforts and give rise to a total or complete prolapsus.

Reduction, then, shall be tried as early as possible in small species. In large animals one can wait two or three days. Preliminary care is essential. The mucous must be well washed; all foreign bodies or false membranes must be removed; vaseline is then spread over and by careful pressure, reduction can be attempted. Should the protruding mass be tumefied and big, astringent applications or scarifications can be resorted to. If the reduction is impossible, or if the mucous is torn or gangrenous, it must be resected.

In large animals, the operation is done in the standing position, and consists in cutting off with the bistouri or the scissors the mucous membrane all around the anus. A hæmorrhage, quite abundant, takes place, but soon stops. A suture is made of mucous to mucous, although it is not essentially necessary. It, however, hastens recovery. In small animals the operation is the same, but the suture is too difficult to apply. To avoid the hæmorrhage, one can use the thermo-cautery to cut off the mucous, or, again, use ligatures. Then the mass is divided into two or four parts with waxed thread or an elastic cord, which is passed around the base of each part.

* * *

The treatment of the total prolapsus is often difficult. It consists in *reduction* and *contention* of the reduced organ. These can be attempted only if the accident is not of too long standing and if the mucous is perfectly free from lesions, as in both conditions it would be better to resort to *amputation*.

To proceed to the reduction, large animals are placed in their stall, standing with their hindquarters elevated and higher than the fore. Casting is to be avoided if possible. Small animals, of course, shall be laid on a table and their hindquarters kept

raised. The same care shall be applied upon the protruding part, and the attempt to reduction will be carried out as in the case of a mucous prolapsus. Sometimes they will be followed with good results, and, again, quite often with failures. These are due generally to two causes: (1) Violent expulsive efforts, or, (2) the size of the mass protruding.

Against the first, chloral in intraperitoneal or intracæcal injections are indicated. Chloroform and ether are also good. Drench of diluted alcohol has been recommended for cattle and pigs. Against the second, astringent applications or compresses with moist cloth or the elastic band. If all these fail, scarifications of the mucous, stimulating the hæmorrhage by tepid lotions, will do good. After the use of these various applications, the mass is reduced in size, and returning it to its position may be easily made by slow and regular pressure. One must not be satisfied in merely pressing the rectum back into the pelvis. This must be stretched with the arm or hand or the finger, whether working in large or in small animals. If these fail, repoussoirs must be used, although perforation of the rectum may result in their careless application. Sometimes tepid irrigation will answer the purpose better. Laxative and careful diet complete the treatment.

* * *

But it is rare if expulsive efforts do not reproduce the accident again, and on that account "*contention*" of the organ is necessary. Numerous are the means recommended, but they are not all efficacious. *Pessaries* are contra-indicated, as acting as foreign bodies and promoting the expulsive efforts. *Compression* has given good results, whether made with pads or a copper ring held against the anus and secured in place by bands, etc. These apparatuses must be left in three or four days. They interfere with defecation and can be easily displaced. *Sutures* are much better. The X suture or again quill four sutures are recommended. The objection to their use is that they must be let loose at least one hour a day to allow the dropping of the

fæces. Closing the rectum and anus with wire or needles has also been recommended. The suture of Walravens André, or the purse or tobacco-pouch string suture, are left in place four or five days and is one of the easiest modes to insure contention, even in larger animals. Finally, *colopexia,* or the contention by peritoneal sutures of the organ is an excellent method of treatment for dogs when the other preceding methods have failed. This colopexia is a simple operation. The abdomen is opened on the left flank after antiseptic precautions have been taken; the peritoneum is open, perforated, and, by pulling gently upon the colon, the reduction is obtained and with sutures is fixed on the abdominal walls. This operation has been performed by many surgeons, and the number of successful cases on record proves its superiority.

* * *

But if reduction has not been obtained, contention is impossible, and the organ is more or less injured, *ablation* or *cauterization* remain for the surgeon to resort to.

Ablation is performed in several manners. For large animals the classical method seems the choice operation, but it is rather complicated and on that account the simple method of Viborg and Stockfleth has some advantages. "After division of the protruding mass, made from backwards forwards, a hollow, smooth, wood cylinder is introduced in the rectum and an elastic ligature is applied near the anus; the rectum is slowly cut through, the fœces dropping through the hollow cylinder. When the section is complete the apparatus drops of itself."

Another method, also well recommended, as allowing to make an immediate ablation, almost without any hemorrhage and without stricture, and perfectly secured as far as sequelæ of the operation: "One takes a very long thread of catgut, each end of which is passed through the eye of a curve needle, and after drawing the displaced organ sufficiently to permit operation on healthy tissue, one needle is introduced from inwards outwards in the superior portion of the protruding mass and is drawn suffi-

ciently to leave on each side an equal length of the thread. About one centimeter from this first opening of the suture, the needle that is outward is introduced from inwards outwards and through the same opening from inwards outwards the one which is on the inside, thus making a furrier suture which is continued all around the organ and secured."

Finally a Russian veterinarian recommended cauterization with nitric acid. The protruding part is coated over with it; three or four days after the mortified tissues are removed and another cauterization renewed, and so on. The application of the acid has to be done three or four times. The author claims for this mode of treatment one hundred successes out of one hundred cases where he has applied it. For small animals, sutures are difficult to apply. Ablation by ligature is the best treatment. The mass is divided in two halves by a vertical incision and each is tied up at its base as near as possible to the anus. Strong, fine cord or an elastic ligature will answer the purpose.

* * *

Glanders of Bones.—Glanders assumes in horses most varied forms; and, if some cases are so manifest that an immediate diagnosis is imposed, there are others which remain unsuspected; and are detected only at post-mortem by true surprising discoveries.

Among these must be placed the case published in the *Revue Generale* by Mr. A. Conte, sanitary veterinarian. It comes as one more addition to be made to the rare cases of glanders of bones which are already on record.

A gelding has been worked, and stabled, with one belonging to a different owner. He has drunk from the same pail and has eaten from the same manger. Three weeks later the other horse is killed for glanders. The gelding has become a suspected animal and is malleined, with the result of slight organic reaction, local reaction of an average severity and a strong thermic reaction; the temperature running up to 41°—after the eigh-

teenth hour. The general condition is perfect. No symptom of nasal, tracheal, or pulmonary glanders. No pimples on the skin, chancres, cords or swellings. On the right side, above the spur vein, there is a painless tumor, as big as two fists, situated deeply and rather fluctuating. This is opened and gives escape to thick whitish grumulous pus. It appears that the horse has had two other similar abscesses some time before. Those were not considered as farcinous. At any rate, a donkey that had lived for some time with the horse, has been malleined twice without result. However, with the pus of this third abscess, a dog is innoculated and the result is negative. A second malleination of the horse is made, but gives unsatisfactory results. But at a third test the thermic reaction is again present, the organic reaction is wanting and the local is positive. Still no symptoms of glanders on the skin or in the respiratory apparatus. Another abscess has formed on the left side. The pus is innoculated to a dog and to two male Guinea pigs. On the former it is negative. The Guinea pigs died after having shown the characteristic symptom of orchitis. Glanders is positively demonstrated and the animal is at last destroyed.

The autopsy is very interesting. Skin, subcutaneous connective tissue and superficial lymphatic glands are normal. Pituitary, mucous membrane of turbinated bones, larynx, trachea and large bronchia are normal. The liver, spleen and kidneys are also normal. The pleura shows the ordinary lesions of dry pleuresy with adherence of both layers. It is covered with long reddish pedunculated growths constituted by slightly indurated tissue, fibrous in appearance and containing no pus or tubercles. The lungs are not congested and present no special lesions. Only three tubercles, deeply situated, are detected. Bronchial lymphatic glands are larger than normal, but free from tubercles.

The lesions that are most interesting and the most important are on the ribs, involving on the left side, the seventh and twelfth, and on the right the ninth and the fifteenth. The left seventh is the most altered. Widened in its antero-posterior diameter, but

not changed in its coloration, it shows on the internal surface a swelling, hard, smooth to the touch, bosselated on its surface and about as big as a man's fist. The borders are thickened and rounded. The twelfth left rib has similar lesions, but less developed. On the right side these are still less accused. On the ninth rib there is a projecting mass about the size of a pigeon's egg. On the fifteenth only the internal face is more convex and widened for about four or five centimeters. All these neoplasms are closed and have no adherences with the other ribs or the surrounding tissues. On their surface the pleura is inflamed, reddish and covered with the vegetations already spoken of. Cut through, the ribs are found hollowed by an anfractuous cavity containing an oily liquid, yellowish and rather rich in bacilli of glanders.

This case which I have resumed here in a concise manner, besides the fact of being a valuable addition to the pathogeny of glanders, proves also, as the author remarks, that closed lesions of glanders, like those of tuberculosis, are not dangerous as far as contagion is concerned, even towards animals which are very susceptible to it, such as donkeys. And again, it confirms once more the already known fact that a negative innoculation to dog is not sufficient for the conclusion that the disease does not exist and that the formation of abscesses in the lympathic glands in the neighborhood of a point of innoculation, is not always present in the Guinea pigs experimentally injected by subcutaneous injection. But above all, it shows that mallein, notwithstanding its failings, is yet at the present time the choice reactive in the practical diagnosis of glanders.

* * *

BIBLIOGRAPHY.—A copy of the translation of the latest revision of the excellent little work of Prof. Dr. Bernard Malkmus, by the Dean of the College of Veterinary Medicine of Ohio State University, Dr. D. S. White, and Dr. Paul Fisher, State Veterinarian of Ohio, and published by Alex. Eger, of Chicago, has just come to me.

" Outlines of Clinical Diagnosis of the Domestic Animals " is an ouvrage well known on the continent of Europe, having been published in French as well as in German, and having received at the hands of the profession all the welcome and credit it deserves.

The American translators have made a good selection in choosing it for their work. They have no doubt, by a valuable contribution, added to our American literature, and while they seem to have tried to fill up a need for the students under their charge, it is certain that students of other colleges as well as veterinary practitioners, will learn much by reading the work.

In the last original third edition recent clinical observations and new methods of examination have been introduced, the number of illustrations has been increased, and if these are reproduced in the American publication, Doctors White and Fisher have added besides here and there, short notes of their own. Covering nearly 250 pages, illustrated by 57 plates, some of which are colored, and by a color scale for the quantitative determination of Indican, and with contents of great value. " Outlines of Clinical Diagnosis " will certainly prove a valuable acquisition for any one who will realize that, as Prof. Malkmus says, " the only safe foundation for the treatment of animal diseases is a correct diagnosis of the malady."

This book is the one to help to get at it.

* * *

With an affectionate dedicacy to his old teacher, if I am not mistaken, Dr. Samuel Howard Burnett, M. S., D. V. M., of the New York State Veterinary College, has written a book, which is published by the house of Taylor & Carpenter, of Ithaca, and has for its title " The Clinical Pathology of the Blood of the Domesticated Animals."

After having examined the work of Doctors White and Fisher, it had seemed to me that there remained something which, so to speak, left the book incomplete; and as I open the work of Dr. Burnett, it becomes evident to my mind that it came just in time to complete the first.

The examination of the blood as a means of diagnosis is certainly one which has imposed itself since the discoveries that have been made in late years in its composition and condition during some specific diseases. As says Dr. Burnett, "Among the recent methods of examination, that of the blood has taken a prominent place. * * * It should be more generally used by veterinarians." But to realize this, veterinarians had to be educated, and as there has been a lack of accessible data concernning the blood of animals, there was a real need for a text book which would give the practitioners and the students the means to obtain the knowledge necessary to proceed with this new method of examination.

"Clinical Pathology of the Blood of Domestic Animals" is written to that effect and fills the need.

The subject is divided into eleven chapters. The enumeration of their contents will give an idea of the field the book covers. Chapter one treats of the methods of examinations; the second, of the morphology of the formed elements; the third, of the normal blood of the several domestic animals; the fourth, of the variations in red corpuscles and hæmoglobin; the fifth, of the influences affecting the leucocytes; the sixth, of the special diseases of the blood; the seventh, of general and infectious diseases; the eighth, of the specific infectious diseases due to bacteria and fungi; the ninth, of the infectious diseases due to protozoa; the tenth, of the diseases whose cause has not been definitely determined; the eleventh, of the diseases due to animal parasites.

As one can judge by this concise enumeration, the field covered by the author is a wide one. Written in an easy reading manner, concise and yet complete, the text is illustrated by four colored plates and twenty-four figures, and each chapter is provided with a list of references which the reader can benefit by.

Dr. Burnett's work is, if I am right, the first original work on this subject in America. There cannot be the slightest doubt that the first edition will be rapidly exhausted and that it will

become not only the text book of all English reading students, but also of all the scientific practitioners who are always ready to learn of the means by which the diagnosis of a disease can be made in a positive manner.

* * *

I have received the three first numbers of "Veterinary Notes," published by Parke, Davis & Co., and they were welcome. There is a similar publication here issued by a large firm in pharmaceutical and chemical products, but the American edition is more to the point. It is, as claimed by the editor, "A Journal of Practical Therapeutics," which every one will read and benefit thereby.

In the twelfth semi-annual report of the Chief of the Cattle Bureau of Massachusetts for the year ending November, 1907, which I have received lately, Dr. Austin Peters calls especial attention to the prevalence, at that time, of Rabies and Glanders, and to the condition of Tuberculosis amongst the cattle in the State.

Dr. Pierre A. Fish, of Cornell University, has also favored me with a little pamphlet entitled "Abstracts of the Work," done in his laboratory, where I read the reviews of the services rendered to the veterinary profession by Professors Law and Gage, and also a short introduction of Director V. A. Moore. Good likenesses illustrate these three articles. The pamphlet then contains the "Observations on the Schools of Europe," by Prof. P. A. Fish; an article on "Tetanus," by D. K. Eastman and G. R. Chase; one on "Experiments with Barium Chloride," by W. E. Frinck and H. B. Tillou, and one on "Rhus Toxicodendron," by J. H. Frost.

* * *

European Items of Veterinary Interest.—Perhaps the following European sundry information may interest some of our readers:

An association has been formed here of scientific investigators for the *study of Cancer.* Among the members of the

Board of Officers are the names of two well-known veterinarians, Director G. Barrier, of Alfort, and Prof. G. Petit, the learned teacher on pathological anatomy in the same school.

In the *Review of July* there appeared from one of our colleagues and collaborators, *Dr. E. Van Es,* a call in relation to a subscription which is started in Holland to erect a *monument to the memory of Prof. Thomassen.* Many of our friends will, no doubt, be willing to contribute. The inauguration is said to take place when the Ninth International Veterinary Congress will be held.

Director Degive, who resigned some time ago his position at the head of the Belgian Veterinary School at Cureghem, has been elected Emeritus. His successor to the directorship is *Dr. Dupuis,* already well known for his numerous publications.

In the *Italian schools,* the *appointment* of *directors* or *professors* in Veterinary Schools is made by election. The appointment is for a number of years, which varies, and a second or a third term is admitted. Prof. Negrini has just been re-elected director for three years in the School of Parma, and Prof. Brusasco to the School of Turino.

Some while ago *Prof. G. B. Dessart,* of the School of Cureghem, died at the age of 76. For many years he had the professorship of surgical pathology, obstetrics and veterinary jurisprudence. He wrote considerably and many are the articles that were published in veterinary journals. He also wrote a very good work on jurisprudence and one on deontology.

In closing, I must make a correction. In my article on "Tallianine," in the July issue, I stated that this preparation was "almost entirely ignored on the Continent, at least in France." This is a mistake, as I have since learned that last year over 25,000 ampoules have been sold to French practitioners.

A. L.

THE FIELD OF THE VETERINARIAN.

Subjoined is an editorial which appeared in the Philadelphia *Ledger* during the recent meeting of the American Veterinary

Medical Association. Such articles in the public press do much to broaden the lay mind as to the character and scope of the work of the veterinarian and his relation to the public welfare.

The science, as a science, may advance without the concern of the general public, but without an appreciation and support on the part of the general public it is impossible for the profession to accomplish its mission. It is, therefore, pleasing to read this liberal recognition of veterinary progress.

" The members of the American Veterinary Medical Association, meeting in this city in their forty-fifth annual convention, are bringing a wealth of technical knowledge and experience to bear upon questions that even a decade ago would have been considered altogether foreign to the field of the veterinarian. Of foremost importance among these questions, especially in view of the approaching Tuberculosis Convention at Washington, is the problem of the relation of tuberculosis among cattle to the same disease in human beings.

" It is evident that legislative parsimony has hitherto stood in the way of adequate precautionary measures to prevent the transmission of the disease through bacilli contained in impure dairy products. The eloquent plea of Dr. Leonard Pearson, State Veterinarian and dean of the Veterinary School of the University of Pennsylvania, should be heard and heeded in this connection. He urges upon our legislatures the need of appropriations for the establishment of state veterinary schools for the training of specialists in the inspection of food products and the prevention of communicable diseases among animals. The work of the Department of Agriculture under Secretary Wilson is receiving high praise from the veterinarians, and President Dalrymple's address fitly recognized the debt of the meat consumers of the country to the meat inspection service of the Bureau of Animal Industry.

" The general diffusion of scientific knowledge regarding the diseases of cattle and their connection with the ills that human flesh is heir to is the most valuable result of such a convention. The progress of the science of veterinary medicine has in a

few years relegated to the backwoods the old-time horse doctor, mingling a little 'horse-sense' with a vast deal of quackery. Nowadays breeders of blooded stock and lovers of horses will intrust their splendid animals only to the care of those who know just what to do.

"The empirical methods of the 'pow-wow' doctors, some of whom still survive in some counties of the state, cannot compete with the rational and scientific procedure of specialists who satisfy the exacting standards of the American Veterinary Medical Association. The work of investigation and enlightenment that goes on under the beneficent auspices of this association has the heartiest godspeed of the friends of our domestic animals."

TO A JERSEY COW.

Here's to you, Lady, sleek and fine,
True daughter of a royal line!
From small black feet to dainty head
A lady born, a lady bred.
The quiet, mouse-hued coat you wear,
Those faun-like eyes, that timid air
Of fine reserve, plain as your face
Proclaim your ancient, honored race.

Here's to you, Lady! May you know
Fresh clover field where'er you go.
May daisies nod and cowslips spring
About you like a fairy ring;
May bird songs mingle with your bell,
That tinkles down the shady dell,
And still pools mirror back the sky,
Where you may drink and wade breast high.

Here's to you, Lady! May you chew
The cud of happy memory, too,
And coming lowing from the field,
To gentle hands full udder yield.
But ere you sink to peaceful rest,
Grant me, I beg, this one request:
That I may drink this health to you
In that pure beverage which you brew.

—May Ellis Nichols.

ORIGINAL ARTICLES.

CONTROL OF HOG CHOLERA BY SERUM IMMUNIZATION.

By A. D. Melvin, D. V. S., Chief Bureau of Animal Industry, U. S. Department of Agriculture.

Read Before American Veterinary Medical Association, Philadelphia, Pa., September 10, 1908.

It is probable that most of those present are familiar in a general way with the experimental work conducted by the Bureau of Animal Industry during the last three or four years, concerning the cause and prevention of hog cholera. It will be remembered that as a result of experiments recorded in Circular 43 and in Bulletin 72 of this Bureau, the conclusion was reached that the so-called hog cholera bacillus is not the true cause of hog cholera, but that this organism plays the part of a secondary invader, the true cause of the disease being a virus which is present in the blood of hogs affected with hog cholera and which, under certain conditions of filtration, is capable of passing through the finest porcelain filters. Up to the present time this filterable virus has resisted all attempts at artificial cultivation and we know of its presence only through the effect upon hogs when fluids from sick animals, free of all known bacteria, are injected into susceptible animals.

The methods of immunization described herein have been arrived at by the Biochemic Division of this Bureau and the investigations for the past four years have been under the direct supervision of Dr. M. Dorset, the Chief of that Division, and through whom the Department has had the process patented in such manner as to insure to all the people in the United States the right to its free use.

It is a well known fact that hogs which have recovered from an attack of hog cholera are completely immune when subsequently exposed to the same disease.

These two facts—the presence of the filterable virus in the blood of hogs sick of hog cholera, and the immunity in hogs which have recovered from an attack of that disease—form the basis for the preparation of the serum which we have used successfully in immunizing hogs against hog cholera.

Method of Securing Immune Serum.

Without attempting to go into the method of producing this serum in detail, it will be sufficient to say that the protective serum is produced by a process of "hyperimmunization," carried out as follows:

An immune hog is injected with large amounts of blood from hogs sick of hog cholera. These injections will not produce more than a transitory effect upon the health of the immune, although they would prove certainly fatal to a susceptible hog. This treatment of immune hogs with large amounts of disease-producing blood is known as "hyperimmunization," and gives to the blood of the immune the power to protect susceptible hogs from hog cholera. After a week or so, when the immune has recovered from the effects of this treatment, blood is drawn from the immune by cutting off the tail. The blood drawing is repeated three or four times at intervals of a week between the drawings, after which the immune is usually bled to death from the carotid. After each drawing from the immune the blood obtained is defibrinated and mixed with a suitable antiseptic. If preserved in sterile bottles this defibrinated blood, or serum, as it is called, will retain its potency for years.

The protective serum having been obtained from an immune hog in the manner indicated, the potency of this serum is determined by injecting susceptible pigs with varying amounts of the serum and at the same time exposing them to hog cholera along with untreated control animals. In practice it will, of course, be found best to first collect large quantities of serum and to mix this before testing. A standard serum will thus be secured at a minimum cost.

Method of Protecting Susceptible Pigs.

A standard serum of known potency having been secured, either of two methods may be used for protecting susceptible pigs. These are known as (a) the *serum-simultaneous method* and (b) the *serum-alone method.*

The first of these, which is to be recommended for use, especially in herds which have not been exposed to hog cholera, consists in injecting subcutaneously on one side of the body of the pig to be vaccinated a suitable quantity of serum and simultaneously on the other side of the body a small quantity of virulent blood taken from a hog sick of hog cholera. Experiments have shown that by this method pigs are given a firm immunity lasting at least six months and probably much longer.

The "serum-alone method," which consists simply in the injection of the protective serum without the simultaneous use of disease-producing blood, appears to confer only a temporary immunity upon the treated pigs, unless they be exposed to hog cholera a short time after receiving the serum, in which case they also acquire a lasting immunity. For these reasons the "serum-alone" method is admirably adapted to the treatment of hogs in a herd where hog cholera has already broken out, but which have not themselves shown visible symptoms of disease.

The experiments which are being carried out to determine the curative properties of the serum are not yet complete, but from the results thus far obtained we know that serum in the doses used for immunization can not be depended upon to cure hogs which already show visible symptoms of hog cholera. Further work along this line is needed. It should be stated that neither the serum-simultaneous nor the serum-alone method, when properly applied, appears to injure the hog in any way.

Cost of the Serum.

In order to determine the cost of producing serum for practical use, every item of cost would, of course, have to be taken into account and allowance made for all sources of revenue.

Owing to the conditions under which we have been working, that is, manufacturing serum for experimental use only, and utilizing the same force for the production of the serum and for carrying on varied experiments, we are unable to give an exact cost price of the serum thus far produced. Sufficient work has been done, however, for an estimate to be made. With the dose of serum at 20 cubic centimeters, and with the production carried out with strict economy, it seems likely that the cost per dose can be brought to 25 cents. This estimate is based upon the supposition that each hyperimmunized immune will furnish 150 to 200 doses of serum, and that the carcass of the immune after final bleeding will be utilized for food. There seems to be no objection to the use of such a carcass for food purposes, provided the post-mortem examination discloses no reason for rejecting it.

I have recently been informed by Dr. C. E. Marshall, of the Michigan Agricultural College, who has begun the preparation of this serum for distribution to farmers of that state, that it is their purpose to charge at present 2 cents per cubic centimeter for the serum, though they hope to be able to reduce the price materially before another season. It will undoubtedly prove to be true that the cost of the serum will vary with the conditions of manufacture, and the proportionate cost should decrease as the amount of serum produced increases. In any case it seems certain that the serum can be produced cheaply enough for practical purposes.

Results of Practical Tests of the Serum.

The statements which have been made above concerning the protective power of serum from hyperimmunized immunes are based upon tests upon several thousand hogs. These tests were not carried out in small experiment pens only, but in great part upon farms under practical conditions. During the fall of 1907 approximately 2,000 hogs were treated on 50 different farms, a considerable proportion of untreated hogs being left in

all cases as a control on the action of the serum. Both methods of vaccination were used and the herd conditions varied widely. The herds can be roughly classified as (a) those in an infected district, but themselves free from disease, (b) those which were known to have been exposed by contact with sick hogs, but which had not developed disease at the time of treatment, and (c) herds in which hog cholera was present and hogs sick and dying at the time of treatment.

In no cases were any of the ordinary methods of combating hog cholera by disinfection and separation of the sick from the apparently healthy practiced. Where disease was present at the time of treatment, the treated were allowed to run with the sick animals along with a number of untreated animals, which served as controls, and the success following vaccination can therefore be attributed to the action of the serum. In the herds where hog cholera appeared subsequent to treatment, all of the vaccinated hogs remained well, while more than 65 per cent. of the checks died. In the herds which had been exposed, but were apparently well at the time of the treatment, 4 per cent. of the treated animals died, while approximately 90 per cent. of the checks succumbed. In the herds where disease existed at the time of treatment, and where we did not anticipate very great success, 13 per cent. of the treated animals were lost, whereas 75 per cent. of the checks died.

These successful field trials, confirming as they did numerous tests carried out under experimental conditions, have convinced us of the efficiency of this method of dealing with hog cholera, and although improvements will undoubtedly be made in many of the details of producing the serum, the method is believed to be now in such condition as to make the practical use of it entirely feasible.

In order that the states most concerned in this question might be brought into closer touch with the work, and also for the purpose of discussing plans for effective co-ordination of the state and federal work in dealing with hog cholera, twenty-five

of the chief hog-raising states were requested to send representatives to Ames, Iowa, where the Bureau of Animal Industry maintains a farm devoted to experiments with hog cholera. In response to this invitation, representatives from twenty different states visited Ames and were shown the details of the serum production.

A general discussion at these conferences developed the practically unanimous opinion on the part of state and federal representatives that the serum should be prepared by each of the states for distribution to the hog raisers, and all state representatives expressed their intention to undertake the work as soon as funds could be secured. At the present time a number of states have actually begun work. If the serum is prepared in sufficient quantities there seems to be no doubt that a great saving can be effected simply by treating animals in exposed herds or in herds in which the disease has just appeared.

If the greatest good is to be accomplished, however, we should not be content simply to reduce the losses from hog cholera, but should undertake systematic efforts to eradicate the disease. We are all familiar with the course which hog cholera usually takes when it appears in a neighborhood. A herd develops the disease, which may not be recognized as hog cholera for several weeks after it has made its appearance. Following this the neighbors' hogs will become infected, and from there rapid progress is made, the number of new foci increasing more rapidly as the infected area widens, until finally the losses in a single county may be enormous.

It is evident that in order to control the disease there must be some means of confining it to the original center of infection. This has been attempted by the British Government through the quarantine of farms where hog cholera exists and the slaughter of all infected animals. That such procedures alone will not yield the desired results is shown by the official reports of the prevalence of hog cholera in England.

In this country such methods would not be suitable, for, aside from the enormous expense involved, it would in my opinion be entirely impracticable to thoroughly disinfect extensive farm

premises and to carry out a quarantine which would be effective against such carriers of disease as dogs, crows, buzzards and other animals.

Plan for Eradication of Hog Cholera by Serum Immunization.

I have already stated that the serum from hyperimmunized hogs can be used to protect hogs from hog cholera, and that a large saving can be effected if the serum is applied promptly after the disease appears in a herd. Why, then, should not this serum be used as an agent for the eradication of hog cholera? It seems reasonable to believe that it can be used successfully for this purpose, but complete success can not be expected without proper organization and the direction of the work by health authorities.

In order that the possibilities of well-directed work along these lines may be brought to the attention of those who may in the future have this work to perform, I desire to submit the following plan for combating hog cholera through serum immunization:

(1) The serum should be prepared by the State Experiment Stations, or by State Live Stock Sanitary Boards which are properly equipped with laboratory facilities, the efficacy of all serum to be determined by such laboratories before distribution.

(2) The field application of the serum should be in the hands of the State Live Stock Sanitary Board or State Veterinarian.

(3) The states should be organized into districts, each in charge of a deputy State Veterinarian, or a deputy appointed by the Live Stock Sanitary Board. These districts should be small enough to permit the deputy to exercise close watch over them.

(4) The deputy State Veterinarians should keep a supply of serum on hand so that prompt action may be taken when infection appears.

(5) Hog raisers generally throughout the state should be informed when the serum is available for distribution, and, if necessary, compulsory notification of the presence of disease in a herd should be imposed.

(6) Upon notification to the State Live Stock Sanitary Board or State Veterinarian that hog cholera has appeared in a certain

neighborhood, the diseased herd or herds should be immediately quarantined, the premises disinfected as thoroughly as possible, and all hogs on the farm which have been exposed or which are not visibly ill should be treated with serum alone. All hogs on the farm which have not been exposed should be treated by the serum-simultaneous method, and of course the prompt removal of dead animals should be enforced. At the same time all hogs on surrounding farms should be treated by the serum-simultaneous method.

Prompt action of this kind should result in confining the disease to the first herd where disease appeared, though we must admit the possibility of infection being carried beyond the vaccinated belt by birds. If this should occur the procedure should be the same as in the first case of disease, though the probability of dissemination by birds will not be great owing to the comparatively small size of the infected area.

With a well-organized live stock sanitary board and an efficient corps of deputies throughout the state, there seems to be no reason why hog cholera should not be kept well under control and possibly in time eradicated by proceeding along the lines just indicated. By starting the work in early spring or summer the task would probably be much simplified and the cost reduced to a minimum.

Aside from the eradication of hog cholera, which is an end we should all strive for, it seems that an immense saving to swine breeders and to the hog industry in general can be accomplished through the protective inoculation of pure-bred hogs. Some of these hogs represent years of patient effort on the part of breeders, and their loss is a loss to the swine industry in general which depends for its success in great measure upon the development and preservation of the superior characters possessed by these pure-bred animals.

There is no doubt that the hog raisers would gladly co-operate with the state authorities and any outbreak of disease would be promptly reported, as the farmer would have everything to gain and nothing to lose by so doing.

THE CONTROL AND PREVENTION OF BOVINE TUBERCULOSIS IN INDIVIDUAL HERDS.*

By Veranus A. Moore, Director, New York State Veterinary College.

Before we can hope to successfully search for methods by which to control a disease of animals, it is necessary to have a clear understanding of its nature, its means of dissemination, and its dependence, if any, upon the habits of the people. In a previous report I pointed out the occasional close relationship existing between the practices of owners and certain of the physical disorders of their animals. It is important here that in the discussion of the control of bovine tuberculosis we do not lose sight of the human element as an adjunct to the natural means provided for its dissemination. With the wide distribution and extent of bovine tuberculosis, the opinion is oftentimes expressed that it is almost, if not quite, pan-epizootic in character; but upon more careful reflection, keeping in mind the known facts concerning it, we are forced to recognize the great significance of the individual and the personal responsibility of the owners of infected cattle. This throws a new light upon the situation, in which bovine tuberculosis stands out very clearly as a *morbid-complex,* involving alike the parasitism of the tubercle bacilli upon their hosts and the blind activities of the cattle owners in assisting these bacteria to pass from the infected to the well animals.

Another member of this committee will discuss the cause and distribution of bovine tuberculosis. In my part of this report, it is necessary to anticipate this and to state simply that its specific character is demonstrated and that its virus is widely and more or less thickly scattered through the herds of our country.

As tuberculosis appeared in cattle early in the known history of the species, it had a long time to become disseminated through its natural channels of transportation and transfer before it en-

* Part of the report of the Committee on Diseases, American Veterinary Medical Association, Philadelphia, September, 1908.

countered the hostile activities and barriers of preventive medicine. The efficiency of these natural methods of dissemination has been heightened during recent years by the steady increase in cattle traffic, especially in dairy districts. We are confronted, therefore, by this serious situation, in which the natural powers of dissemination have been and still are being accelerated by the habits of the dairymen. The problem before us then is, how is the veterinarian, either in a private or official capacity, to assist, in fact to lead, the work of controlling this scourge of cattle in this country and in the near future.

With the gathering of statistics the enormity of its ravages has become sufficiently apparent to cause a widespread awakening concerning it. The veterinarians as well as the laymen have been almost overwhelmed by the knowledge of the extent of this parasitism. Because of the apparent suddenness with which this scourge has come upon our herds, much ill-considered legislation has been enacted. This, however, was largely due to the misconception of the nature of the disease by the profession. In the past the plagues of animals or epizootics which have been controlled under the advice of veterinarians have been of an entirely different type of disease. Tuberculosis is the first infectious disease of animals to be controlled where the infected individual retains for a considerable time a proportionately large money value. It was to be expected that a clear conception of the knowledge of the parasitic nature of tuberculosis, which involves the long struggle that goes on between the invading organism and the host, should require considerable time to crystallize. It has been a lack of appreciation of the value of the slightly infected individuals which has checked progress in its elimination. Thanks to the untiring efforts of Koch, Smith, Bang and a host of others, we are coming into possession of a clarified knowledge of the real nature of this disease. With a knowledge of what tuberculosis is, we need for our purpose only to look into the past to ascertain how it came about that the present condition exists.

As bovine tuberculosis is disseminated largely by the introduction of tuberculous animals into sound herds, it is natural that the increasing demand for milk, which in certain districts of large dimensions has caused a marked increase in the activity of the traffic in dairy cattle, should have rapidly augmented the amount of the disease. These conditions have existed throughout the country, so that in every state we find we are drifting rapidly to the same condition which existed in Denmark, Norway and Hungary a few years since, when from 35 to 45 per cent. of the dairy cattle were infected. The country is now awake to this condition, so that the control of this most insidious of animal infections has become almost simultaneously a problem for the nation, the state and the individual. The point of view of each is in a measure different from the other, but the solution of the problem is the application of the same sanitary principles, viz., *segregation* and *prevention.*

The first of these is difficult for the state, but the two are practicable for the individual owner. As the family is the unit for the state, so the individual herd of cattle is the unit to be dealt with in the control of this disease. As the veterinarian stands as the guardian of the health of the herds, he is in a position to give that advice and counsel which will enable the owners to protect the sound herds and to weed out the diseased animals from the infected ones. The problem after all is a personal one. The man who owns a sound herd is responsible if he allows this disease to enter. If he has awakened to the fact that he has a diseased herd, is he not responsible if he continues to propagate the infection? A negative reply to this question is based on the ground that the individual owner is ignorant of the nature of this disease and does not know how to proceed wisely. As the health officer of a community instructs its people how to protect themselves from epidemics, so the veterinarian should assist cattle owners in their efforts to control this disease. Their source of information being largely the personal instruction given by their veterinarians, the responsibility of the veterinary profession is clear. In this respect, however, the veterinarian cannot be

charged generally for the existing conditions, because the dealings among men, which have made possible and actually have brought about the extensive dissemination of tuberculosis among cattle were largely transacted entirely independent of veterinary advice. But now that the virus has been spread, and the cattle owners instructed through public bulletins and the press concerning its effect, the veterinarians are logically the only persons to assist the individual dairymen in eliminating the infected animals. In this the practitioner has not only responsibility, but very great opportunity.

The cattle owner is called upon for his own interests to determine whether or not his herd is or is not infected with tuberculosis. The fact should be ascertained for economic reasons if for no other. As this cannot be done without the aid of tuberculin, it is evident that the owner must himself apply the test or employ a veterinarian to do so. It is clear to every professional mind that tuberculin should not be used by those not capable of making a physical examination. It is claimed by many agriculturists that this test is a legitimate part of agricultural work, and some agricultural colleges are instructing their students in its use. As the veterinary profession is being differentiated from animal husbandry, it is evident that eventually work of this kind will be performed by those who are properly trained and who can do it best, but at this time the question vital to this cause is the cooperation of the veterinarian with the owners of individual herds. In New York the efforts to eradicate this disease are largely individual. During 1904-6 the state tested less than one-third of the animals that were examined with tuberculin. It is the influence of the individual veterinarian on the individual dairyman and the wisdom of his professional advice that will do more than any other influence to set the unit right.

I have emphasized the significance of the individual influence of the veterinarian over his client to the end that the latter will assume his share of the obligation in eliminating tuberculosis from his animals. This should be done, first, because it is better economy; secondly, the consumers do not want dairy products

from tuberculous cows, and thirdly, there is a feeling developing that the state should not compensate owners for tuberculous animals. In New York the compensation for such animals has recently been increased, but the question whether such a law is right is being discussed in many quarters. The question, why should a man be paid for a tuberculous animal any more than for one dead of anthrax or any other disease, is being asked repeatedly. We do not pay farmers for decayed vegetables; why should we pay for infected milk? In some states there is no compensation, and in certain states where there is, its discontinuance is being urged. The tendency seems to be that payment for such cattle from public funds is not to last.

It has been amply shown and in many bulletins for distribution among dairymen, that tuberculosis can be restricted if a little thought be given to the subject. Our national government as well as several states distribute tuberculin. All that is lacking to remove bovine tuberculosis is the introduction of efficient methods for preventing its entrance and spread and for cleaning up infected herds. The details of these methods are to be worked out for each group of animals, according to the existing conditions. There can be no rule for the wise and economic eradication of this disease that can be applied generally. As the conditions vary, it is the veterinarian who, being versed in its principles, can direct the procedure that promises the best results. It is because of the variety of conditions involving the intrinsic value of the reacting animals either for fertilizer, beef or breeding purposes, and the extent of the infection in the entire herd which indicates the probable future of the non-reacting animals, that the economic eradication of this disease must be accomplished in a personal, individual manner.

It is not my intention to omit the significance of proper legislation as a valuable adjunct in the elimination of tuberculosis. There is great need for the existence of laws that will prohibit all actions which tend directly to its spread. A new statute in New York makes it unlawful for a man to sell, except for immediate slaughter, animals suffering with an infectious disease un-

less by a written contract specifying the disease from which the animal is suffering and signed by both parties. A copy of this contract shall be filed with the Commissioner of Agriculture. Laws to prevent interstate traffic in infected animals, and in fact many other means of protection, such, for example, as prohibiting auction sales of cattle unless they are guaranteed to be free from tuberculous infection, are not only very desirable but should be enacted and enforced. It is clear, however, that such legislation will not eliminate the infected individuals from diseased herds. To require by law the universal testing of all cows and the slaughter of all of the infected, as occasionally advocated, would be of temporary value only unless retests were made and in many instances remade. Local and perhaps state laws and regulations should prohibit the sale of dairy products from infected cows. Such a demand by the consumers has gradually enforced the tuberculin test and the elimination of reacting animals in many localities. Such laws or regulations cannot be enforced generally without large approriations, which the legislatures of the country are universally refusing to make. The elimination, therefore, reverts back to the action of the individual cattle owner, directed by his veterinary adviser.

The fact should not be lost sight of that animals slightly affected with tuberculosis still possess their beef and usually their breeding value, hence their depreciation is not so great as it seems when the infected individuals are detected early in the course of the disease. In this respect tuberculosis differs from all other diseases of cattle that have called for special methods of control. This value of infected animals renders it very desirable that the veterinarians should advise the owner relative to the choice of procedures and that the owner be allowed to act upon such advice. Experience shows that many cattle owners prefer to have their herds dealt with by privately employed veterinarians.

The interpretation of the action or the non-reaction of tuberculin has been difficult for many cattle owners to understand. Our experience is that after a positive reaction, one can find

active tuberculous lesions on post-mortem examination. When reported as not found they undoubtedly exist, but may be in parts ordinarily inaccessible, such as the bones, or they may be microscopic in size. In cases where there is no reaction the animal may be infected but the disease may be in the period of incubation or it may be arrested and healing. The healing may be temporary or permanent. The percentage of cases in which the disease is temporarily arrested in a dairy that is infected and which will not respond to tuberculin seems to depend upon the length of time the infection has been in the herd and the number of cattle that are distributing tubercle bacilli. It is important that dairymen should understand the possibilities of future reactions when they purchase cattle on the tuberculin test from infected herds. The explanation of the failure of tuberculin to react in certain if not all arrested cases, is found in Eber's theory as modified by Smith for the action of tuberculin and in the healing process in arrested cases where the lesions are surrounded by a fibrous wall. In such cases the specific product is largely confined to the focus, and any that might have been in the surrounding tissues or circulation may have been eliminated, so that the tuberculin does not come in contact with it. An appreciation of the action of tuberculin, and the conditions under which it may fail to react, will enable one to judge more accurately of the results of a test and from the conditions anticipate the probable future of animals that do not respond. The following summary may be considered as a working basis on this point:

1. When a herd is extensively infected, a considerable percentage of the non-reacting animals are liable to have the disease in a latent or dormant stage. These animals may react at any time during a period of several years.

2. When there are very few reactions in a herd, those that fail to react are more likely to be free from infection.

3. Where there are no reactions the negative results can be relied upon as indicating that tuberculous infection does not exist.

4. An animal that reacts and later ceases to react should not be returned to a sound herd.

5. Dairymen should buy cows from sound herds only.

6. The elimination of bovine tuberculosis depends upon the individual efforts of the cattle owners.

7. Tuberculin should not be applied by unskilled persons.

8. The great aid tuberculin affords is its power to cause a reaction in very slight active infections. This enables the owner to save the beef or breeding value of the animals.

A review of the legislation for the control of bovine tuberculosis that has failed in its purpose and the methods which have given the best results, either in countries as in Denmark or in private herds in this country, warrant the conclusion that tuberculosis can be practically eliminated from cattle. This cannot be accomplished by acts of legislatures but by the persistent application of an intelligent system of action that will prevent the further spread of the virus and eliminate as quickly as consistent the animals already infected. Laws may and undoubtedly will be of much assistance, but the real results must come from the wise, conservative and scientific advice given by the practitioner of veterinary medicine and followed by the individual owner of cattle. When the owners eliminate this disease from their herds, bovine tuberculosis will no longer be a matter of state or national concern.

ENCLOSED find check for $3.00 to square account for another year. Let the REVIEW come as I simply cannot do without it. —(*A. J. Savage, D. V. S., Colorado Springs, Colo.*)

TOO ROUGH FOR THE COWS.—Mrs. Rorer, of cook book fame, tells of seeing a maid drop and break a beautiful platter at a dinner recently. The host did not permit a trifle like this to ruffle him in the least.

"These little accidents happen 'most every day," he said, apologetically. "You see, she isn't a trained waitress. She was a dairymaid originally, but she had to abandon that occupation on account of her inability to handle the cows without breaking their horns."—*Everybody's Magazine.*

THE TRANSPORTATION OF LIVE STOCK.

By Dr. N. S. Mayo, Chief of the Department of Animal Industry, Republic of Cuba.

Read Before the Forty-fifth Annual Meeting of the American Veterinary Medical Association, at Philadelphia, Pa., September 9-12, 1908.

With the rapid growth of methods of transportation both by land and sea, the closer commercial relations that are being formed with foreign countries, and the widening sphere of influence of the United States of America, the transportation of live stock to distant parts, not only within the United States proper and our colonies but to foreign countries as well, promises to be an important industry. The greater part of Central and South America is well adapted to the growing of live stock, the pastures are extensive and abundant, with a tropical, or at least mild climate, and it would seem that these countries are admirably adapted to the growing of the world's meat supply. While the general conditions are favorable, there are two serious obstacles to the realization of this prophecy in the near future; first, the class of cattle that are raised in these regions are not such as the world's market demands. They are of the small, lean, Spanish type and develop slowly. Then, again, tropical countries are not well adapted to the growing of grain for fattening purposes, so that before these countries become formidable competitors in the world's markets, they must first improve their cattle by importing and breeding better animals. This they are beginning to do. A good many pure-bred animals of the best beef breeds are now being imported from the United States, but mostly from Europe, and it would seem that the breeders of the United States should make a stronger effort to obtain this trade, for they are better adapted to supply animals immune to Texas fever, as practically all of these countries are infested with cattle ticks.

After the cattle are grown in those countries, they will either have to be shipped to foreign countries to be fattened or they

will have to import grains for the purpose, as tropical countries do not grow grain for this purpose.

In the transportation of live stock, the object is to deliver the animals at their destination in as good physical condition as possible, to avoid losses by disease or injury en route, and to avoid hardship or suffering of the animal.

The transportation of animals within the United States is so extensive, and the methods so well understood and so well regulated by law, that but little need be said regarding this phase of transportation, so I shall consider largely transportation to foreign countries.

Before shipping live stock to foreign ports, and investigation should be made regarding the general conditions in that country and the diseases existing there to which imported animals would be subject, and, so far as possible, the animals should be immunized, or vaccinated, against such diseases as Texas fever, black leg, anthrax, or rinderpest. If swine are to be shipped they should be immunized against hog cholera. Cattle should be tested with tuberculin and horses and mules with mallein; all tests and immunizations should be officially certified to. Before shipping to a foreign port a thorough study of the quarantine regulations should be made, and they should be strictly complied with, for with the increased transportation of live stock, the danger from the dissemination of transmissible diseases is greatly increased. If the animals are pure-bred and registered, the certificates of registry should accompany the animal. All animals should be carefully examined before shipping, to be sure that they are free from transmissible diseases and external parasites. Except where cattle are exported to tick-infested countries, they may carry a few ticks as evidence of immunity to tick fever. It is not a good plan to ship females in an advanced stage of pregnancy; while it can be done, the care of young animals born on a voyage is great, and as a rule takes time and attention that is needed for others. The risks, too, on shipping females in this condition is much greater than otherwise.

If animals are to be shipped by rail, the cars should be carefully cleaned, disinfected and dried before the animals are loaded. The car should be well bedded to prevent the floors becoming slippery. If "green" horses and mules, that is, those that have not been exposed to shipping or stock-yard fever, are shipped, care should be taken to avoid public stables or stock-yard stables as you would shun the plague.

When animals are shipped by rail to a port of exportation and there re-embarked, they should have at least two days' rest before reloading. The animals should be inspected at the port of export by an inspector of the United States Government and a certificate of inspection obtained from him. It is always advisable to have experienced shipping agents attend to the arrangement of the shipping, as any irregularity in the Consular invoices or shipping bills is liable to cause endless difficulties and worry. The attendant in charge should be a person familiar with the care of animals, a close observer, good worker, and possessed of natural ingenuity, because there will be many difficulties to be overcome that will require all of these traits. A close observer will notice anything abnormal and will remedy it before the animal is down and out.

Before loading the animals, they should be exercised and fairly fed with laxative food. Horses and mules should have shoes removed and hoofs trimmed, to avoid breaking. If it is possible, select a steady ship fitted with bilge keels. All stalls and fittings should be substantial. If temporary quarters are built they must be strongly bolted. It is a source of great danger and vexation to have partitions or other necessary fittings break loose in rough weather, just when they are needed most, and when it is practically impossible to repair the damage. Whenever a number of animals are shipped, one or more hospital stalls, ten by ten or eight by ten, should be provided so that a weak or ailing animal can be removed when the first symptoms appear. The use of slings for sick or ailing animals on ship is a delusion and a snare; leave them behind. Be sure that the ship is well provided with wind sails for hatches, and ventilators and electric

fans for the between and orlop decks. *Animals must have an abundance of fresh air.* Horse stalls on ships should be 8 feet long by 2 feet 4 inches in width and as high as possible; on the between deck there should be at least 7 feet 2 inches space between decks. The front and haunch bars should be strong, and the side bars should be removable at the front end so that an animal cannot knock them out by kicking. The floor should be well cleated to give a good foothold and prevent slipping.

In case any of the animals are vicious and difficult to handle, they should be so placed where there is the least danger of injuring persons or other animals. Feed and water the animals regularly, but do not overfeed. It is better to err by giving them too little than too much. They should be watered often. Attendants should be quiet and not excite the animals unduly, as the nervous strain on animals in transit is great. Horses and mules should be removed from their stalls on shipboard daily during good weather and exercised by walking them in the passageways. They should also be groomed. In cleaning and grooming, remove horse No. 1 to a passageway, clean the stall, and shift horse No. 2 to stall No. 1, and so on until the end, when horse No. 1 can be placed in the remaining vacant stall. The stall should be well bedded to prevent the floor from becoming slippery. In case straw or other material is not available, ashes from the boiler room answers well.

After Treatment.—While animals do not show the effects of a sea voyage immediately on landing, if they are put to work at once or are subjected to any hardship they fall away very quickly and become greatly debilitated. For this reason they should have at least a week's rest with laxative food, gentle exercise, and protected as much as possible from extremes of temperature.

While the suggestions offered are simple, I hope they may prove practical to any one who may be called upon to take charge of the transportation of live stock to foreign ports. Upon this subject very little can be found in veterinary literature, as the writer can testify to from experience.

In conclusion, I would say that the transportation of live stock in any numbers should be in charge of a competent veterinarian; they must have plenty of fresh air and space, opinions of steamship owners to the contrary notwithstanding. A careful attention to the small details will add much to the comfort of the animals, and will be a corresponding saving for the owner.

THERE is an increasing demand for veterinarians trained along animal husbandry lines.

NEW REQUIREMENTS UNDER THE NEW YORK LAW.—The recent amendments to Article IV. of the New York State Agricultural Law, relating to diseases of domestic animals, includes a new section designated as 63-a, important changes in Section 67, which relates to the organization for carrying on the veterinary work, and important amendments also to sections 68 and 70-a.

Among the new requirements and provisions are those which provide larger payment to owners of cattle condemned by the state for tuberculosis, definite provisions for following the segregation system in caring for tuberculous animals, and definite provisions relating to the disposition of wholesome meat from reacting animals.

It is now illegal for any person to sell an animal known to have a communicable or infectious disease, except for immediate slaughter, unless such sale be made under written contract, signed by both parties and specifying the disease. A copy of this contract must be filed in the office of the Commissioner of Agriculture. A provision has also been inserted intended to prevent the use of impure tuberculin.

Another new provision, which is in line with veterinary as well as general medical legislation in other states, requires that veterinarians shall immediately report to the Commissioner of Agriculture the existence among domestic animals of any infectious or communicable disease coming to their knowledge. Such reports must be in writing and shall include a description of the diseased animal or animals, name and address of the person in charge, and the location of the animal or animals.

Copies of the amended law and blank forms for reporting cases may be obtained by veterinary practitioners upon application to the Department of Agriculture at Albany.

ADDRESS OF HON. N. KAUMANNS, IMPERIAL GERMAN AGRICULTURAL SPECIAL COMMISSIONER TO THE U. S.*

It is with a feeling of profound pleasure that I have accepted the kind invitation of your president to attend the meetings of your highly esteemed association. The brief space of time accorded to me and other causes have made it impossible for me to comply with your wishes, to give you an insight into the standing and the position the veterinary surgeon occupies in the various communities of Germany as a professional man and as a man of science. It is almost needless to say that a man who devotes his life and energy to the study and practive of veterinary science, and possesses all the necessary qualities and attainments and skill, is positively assured of the highest respect and uncurtailed recognition on the part of the public.

I take the deepest interest in your proceedings and deliberations, not only in a general way, for among the more important subjects which come up for discussion there are some that appeal directly to my individual interest because I have on behalf of my government dealt with these questions to a considerable extent at various times. In this connection I will mention among other subjects only the highly malignant tuberculosis and hog cholera, as well as the injurious Texas fever of the Southern States, and also the great importance of the veterinarian in relation to the public weal. There is probably no city in the world where in this direction so much strenuous work is demanded of the veterinarian as in Chicago, the city of mammoth slaughter houses. Nowhere in the world is the importance of the veterinarian in regard to the welfare of the community more strongly marked than there. The veterinarian more than any other factor in public life in that city has the means, through his knowledge

*Delivered before the Forty-fifth Annual Meeting of the American Veterinary Medical Association, Philadelphia, 1908.

and conscientiousness, to prevent unspeakable distress and suffering among the population, and it is he, furthermore, who through incorruptible and energetic actions is enabled to raise the importance and character of an entire industry.

Gentlemen, when I state that I take great interest in your proceedings, I desire at the same time to express the wish that a more close relationship between the old and new world may spring into existence also as far as your profession is concerned. The great achievements recorded in your domain in the Old World have demonstrated to us that veterinary science must closely be allied with the medical science. The veterinarian must prepare the way for the physician in many cases, and he has the power to save an entire community from scourges of various kinds. Both sciences should supplement each other, and veterinarian and physician should be co-workers. How often they have to work hand in hand is shown in the fight against tuberculosis among cattle, which has also spread to an alarming extent in your country. I know that you all look upon our two great savants in Berlin and Marburg—Koch and Behring—with the highest measure of admiration and veneration, and in conjunction with these two gentlemen many of you have achieved an immense amount of good in combating and exterminating tuberculosis and the many other infectious diseases. Most of the diseases prevalent in this country are also only too well known in Europe, although there some of them are called by different names. Very few of these diseases belong exclusively to your country. I mentioned Texas fever. German agriculture is interested in your labors, at least in so far that Texas fever, according to the results of my own researches, very likely has much in common with the infectious diseases of cattle in Africa, especially with those that are transmitted by the parasite piroplasms, and may be really identical with the contagious disease known as recurrent fever, so that a uniformity in the methods of treatment for the purpose of combating these diseases is a matter of

course. A similar disease exists in Germany and is known there as red murrain. I say similar, because it can also be transmitted by other kinds of ticks.

But, gentlemen, it does not lie within my province to discuss the causes or treatment of animal diseases. Prof. Ellenberger intends to speak to you to-morrow of the treatment adapted to tick fever, and I shall feel very glad if I can learn from your lectures and discussions that further progress has been made in combating this plague. Such a disease is able to cause an immense amount of havoc and losses among animals, and therefore it is of paramount importance that, first of all, preventive measures should be adopted. Protection must be sought against an enemy not when the latter has made its threatening appearance, but before it has had time to begin its work of devastation; and against foreign countries the quarantine forms the most effective protective measure when it is of long enough duration to meet the exigencies of the case. If the administration of such a quarantine consists of able and efficient men, then it will prove more successful and be in better shape to benefit animal industry than can be accomplished by prohibitive entry, which often prevents breeders from importing valuable animals.

Gentlemen, veterinary science does not belong to any special country, it is an international establishment, and for this reason all nations should participate in the achievements which this science everywhere accomplishes. In behalf of your association it is my devout wish that it may step into yet closer relationship with the Old World. And to your efforts and endeavors allow me, gentlemen, to propose a hearty *vivat, crescat, floreat.*

THE Colorado State Veterinary Medical Association will meet in special session in Denver this month to discuss state legislation.

THE LEISURELY BOY.—Friend—Why did you discharge your errand boy?

Butcher—Customers claimed he was too slow; said he took so long that when they ordered veal it arrived as beef.—(*Puck.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

TRISMUS.

By W. B. Welch, B. Sc., D. V. M., Marshal, Mo.*

Read before the Missouri Valley Veterinary Association, 1908.

The term trismus is applied spasm of the muscles of mastication. As this is only one of the conditions found in that disease the use of the term trismus is inappropriate and misleading. The spasm of the muscles of the jaws while being the symptom probably first noticed is not the most serious, nor is it the condition which causes the most discomfort to the patient, or the factor which causes death unless relieved.

There has been a gradual increase in the number of cases there until the high point was reached last year with fifteen cases. I think that it is confined mostly to Saline county. The disease has been up for discussion in several of our association meetings, but in these discussions nothing definite was brought out as to the cause or pathology and no treatment was suggested.

The majority of cases are in mares which have been turned out with their young colts, after being in pasture for several days or weeks and are caught up, fed corn and put to work. Yet many cases occur where no work is performed and the sudden change of food from the pasture grass to the corn is the only constant condition found. It brings one to the conclusion that the change of food is responsible for the symptoms noted.

On approaching the animal your attention will be attracted first to the drawn condition of the lips and inability to open the mouth. The mucous membranes are congested, eyelids swollen and the eyes watering. Sometimes tears running down the cheeks. The muscles of the jaw and temples are in a state

* Editors—In your September number of the Review I saw an article under the head of "A Diagnosis Requested," by my friend Dr. Kern, of Beloit, Kansas. Thinking that an answer to his request might be of interest to others, I send you an article written by myself and read before the Missouri Valley Veterinary Association in February, 1908. This article will fully answer his query.

Respectfully yours,

W. B. Welch.

of tonic spasm, jerking and moving constantly. Animals are depressed in the early stages. * * * There are spasmodic contractions of the diaphragm which can be heard several feet away. Rapid breathing which becomes more accelerated as the disease advances and the muscles of respiration take on the same condition of tonic spasm as the muscles of the jaws. Animals in the last stages become very nervous and can not retain one position long and keep moving about, legs jerking and the power of co-ordination seems to be lost. They stagger about and sometimes fall.

The pulse and temperature are not much affected at first, but later the temperature rises, the pulse becomes thread-like and rapid and at last imperceptible. The breathing becomes shallower and more distressed until finally the animal suffocates from the apparent inability of the muscles of respiration to relax and let air into the lungs. I am sorry to state that owing to the inconvenience of the surroundings, I have never held a post-mortem and can only promise to give you these conditions at some future date, but from the nature of the disease the quick termination in death, or the rapid recovery under proper treatment, I should expect but little light on the subject from the post-mortem conditions.

There are at least two diseases that can be mistaken for this condition, namely: Tetanus and Heart Exhaustion.

That trismus is mistaken for tetanus by the layman accounts for the numerous quick cures that have been reported of tetanus, but no matter how near the symptoms are alike there is one never-failing test. Even in the mildest cases of tetanus upon lifting the head by the lower jaw the eyeballs are retracted, forcing the membrane nictitious over the eyeball. This condition is never seen in trismus, and by this one symptom these diseases can be differentiated. Also the spasmodic contraction of the diaphragm which is always a constant and distressing symptom of trismus is wanting in tetanus.

The history of the case will almost always differentiate trismus from heat exhaustion, as this condition has a history of very hot weather, rapid work or exhaustive journeys, very high temperature and sudden collapse. While trismus was no previous history of hard work temperature in the first stages only slightly above the normal and a gradual increase of the severity of the symptoms.

The treatment has been varied, chloral hydrate, fl. ex. gelsemium, morphine, belladonna, stimulants, bleeding from the jugular, have all been tried with varying results but with a loss I think of at least 50 per cent. Belladonna seems to be indicated on account of its relaxing muscular spasm, and strengthening a weak heart, but in severe cases any drug is difficult to give by the mouth and one would probably have to resort to the use of atropine subcutaneously. But the use of drugs are of only secondary importance. Noticing a great desire for water in horses in this condition I have in all late cases gratified that desire to its fullest extent. The ideal place for the treatment of trismus is when the patient can get to a trough full of cold water and sup water continuously, if a horse hose can be arranged so a stream of water can be kept running over the head and body it will be advantageous, if no proper place can be found one can fill a tub, place it on the manger, if the horse is still standing, and let it drink from the tub while the head and body is sponged with cold water.

In case the animal is down it can be raised on the sternum and the tub placed in front of it on the ground and cold wet blankets thrown over the body and sponges to the head. I also continue to give belladonna every hour, also chloral hydrate per orem if possible otherwise per rectum. To illustrate the desire for water—a mare that was found sick in the morning was put on the treatment above indicated. The owner placed her in a stall and put the water in front of her in a bucket; in 24 hours she drank 12 buckets of water and took 30 minims of fl. ex. belladonna in each bucket full, making a complete recovery in that time. When first seen she could not be moved for fear of falling and was in a deplorable condition generally.

This is the line of treatment I have adopted which in the last two years saved at least 90 per cent. of the animals affected.

Of course we can only surmise at the cause of trismus, but I think it likely it is a toxæmia due to the absorption of ptomaines from the intestinal tract.

NINE CASES OF ROARING.

By Prof. Simon J. J. Harger, University of Pennsylvania, Philadelphia, Pa.

The results of these cases have not heretofore been published. In all instances excepting the last two cases, which were aryte-

nectomies, the operation consisted in resection of the ventriculus laryngis lateralis.

I. Sr. g., hunter, roared slightly, which disqualified him in the show ring. After a speedy recovery from the immediate effects of the operation, no improvement was noticed, but without waiting to see if time would show any amelioration, the animal was sold.

II. Sr. coach gelding. Roaring marked. After the larynx was spread open, no appreciable disparity in the mobility of the two vocal cords was noticed. True unilateral paresis can be doubted. It was either a question of erroneous diagnosis or a bilateral impediment in the abductors of the vocal cords.

After the operation the horse still roared.

III. Bag driving gelding, said to be able to trot a mile in 2.40, but was incapacitated for his work. After driving a city block at fair speed the noise could be easily heard in the carriage.

Operated in July, 1907. In two months the horse was driven and the owner said that he could not hear the noise in the carriage. I rode behind this horse and found that he could go a mile at full speed without any signs of tiring, but the laryngeal sound was still quite perceptible.

IV. Sr. Trotting-bred gelding. History not recorded. Operated January, 1907. Left vocal cord slightly immobilized. Horse was driven in ten weeks. "He roared some yet but not nearly as much as before" and in June was sold for 240 dollars. The new owner made the horse perform very severe work and after four months the roaring became increasingly aggravated until last May, when the horse had to be destroyed. Post-mortem revealed ossification of the laryngeal cartilages and ulceration of the interior of the larynx. No cause for this ulceration was discernible.

V. Bg. chronic roarer. Operated July, 1906. Reported that after the operation the horse was worse than before. (September, 1906.)

VI. Bg. chronic roarer. Operation, July, 1906. The result was reported to be "perfectly satisfactory."

VII. Black g. trotting-bred. Operated July, 1907. Was unfit for any service other than slow work. When seen six months afterwards, Dr. Jas. McDonough, of Montclair, N. J., reports as follows: Although you could still detect a little noise, I wish to say that he was rendered entirely serviceable for any kind of service he could perform and the operation was a success from that standpoint.

VIII. Sr. m. Operation in 1902. The laryngeal stenosis was such that the mare was unable to do any kind of work. After the operation she was never used for fast work, but was very satisfactory for moderate work and was driven in a milk delivery wagon until 8 months ago, when she was traded off for a fairly good horse.

IX. Black stallion, Special Blend. Racing record 2.16½ on mile track. The roaring interfered with his speed when driven to his limit. Some months after the operation he was used for light driving and in the fall he was campaigned over the racing circuit around St. Johns, N. B., Canada, where he was owned, and paced winning races with heats as low as 2.20 on half-mile tracks, which may be considered equal to his previous one-mile-track performances. The horse still made a little noise, but it did not seem to interfere with his speed.

SUPERNUMERARY TOOTH.

By Mahlon Russell, V. S., Bangor, Iowa.

On July 20, 1908, a gray Percheron horse, 3 years old, weight 1,600 pounds, was brought to my veterinary hospital to be treated for fistula of the ear. History: The owner said the horse had suffered from a discharge of the ear for about a year, and had been treated for fistula of the ear, but from the treatment had not been able to stop the discharge. The horse had got so unruly that he had to be chained with a log chain to the manger before he could be bridled.

The horse was twitched and cocained in five places, from the base of the ear downward to the frontal bone.

On examination I found a small opening into the ear. I then introduced a probe into the opening of the fistula, but could not trace the opening more than two inches down the side of the ear. I then made an incision down the fistula trace for about three inches in length. I could not find any farther trace of the fistula. I then examined the head for enlargement, but was not able to find any part abnormal. I then cleansed the wound with absorbent cotton, and again took the probe to explore for further openings.

I found at the lower perforation of the incision a small opening in which I introduced the probe, and on light pressure led down to the region of the parietal bone. There was a small

amount of albuminous fluid came out around the probe. On rotating the probe a hard substance was felt in the region of the parietal bone. I then made the incision longer and deeper toward the hard substance. I then introduced my fingers, and could plainly feel a molar tooth imbedded in the parietal and squamosal bones. The tooth being very solid, and the horse beginning to get restless, I deemed it best to cast the horse to remove the tooth. The horse was immediately cast, and firmly secured. The head was then firmly held by assistants, and I introduced a pair of root forceps, but could not loosen the tooth. I then introduced a pair of molar forceps, and with slow and steady pressure broke the roots of the tooth loose. I lifted out the tooth, and on cleansing the wound I found in the cavity small pieces of roots, which I removed with a curved bone chisel. The wound was then cleansed with a solution of permanganate of potassium, the horse was relieved, and immediately arose to his feet. After treatment the wound was dressed with the following, used once a day:

℞ Spts. of Camphor.....oz. ii
Tinct. Iodine .....oz. ii
Carbolic Acid .....oz. ss
Oil Olive, q. s.....pts. i.

On August 15, 1908, the horse's wound is entirely healed, and the animal is being worked every day, and gives no more trouble in being bridled.

Description of Tooth.

The tooth is a well-developed and perfect molar. It is an inch and three-quarters in length, and three and one-quarter inches in circumference. It has four well-developed roots, and a perfect crown. The tooth was imbedded in the parietal and squamosal bones, about a half an inch enclosed.

THE South Carolina Experiment Station has been separated from the Clemson Agricultural College and Dr. Enoch Barnett, formerly Assistant State Veterinarian, has been appointed veterinarian to the station. Dr. M. Ray Powers, State Veterinarian, will hereafter devote his entire time to state investigations and to college and quarantine work. Robert O. Feeley, D. V. S. (N. Y.-A. V. C. '06) succeeds Dr. Barnett as Assistant State Veterinarian.

ARMY VETERINARY DEPARTMENT.

REQUIREMENTS OF PRELIMINARY EDUCATION.

Of the large number of good and excellent reports on veterinary education in the United States made by individual veterinarians or committees since the year 1885, none may have more far-reaching results for better or worse than that just submitted to the Secretary of Agriculture by the committee of five veterinarians appointed for said purpose. As a member of the army veterinary service, a branch of our profession that is undergoing severe scrutiny on account of its claims for proper recognition and higher usefulness, I have studied this report with mixed feelings of approval and disapproval; the latter because it needs no prophetic eye to foresee that one or two of its features may be readily used by our adversaries to defeat our aims.

Little can be said against the "recommendations for the course of study." This has been carefully arranged and the grouping of the subjects is logical, except in a few minor instances.* We only miss the lectures on "veterinary propædeutics" as an introduction into the course, and that of "veterinary history" as a rational finish. Yet, as this course stands, and if taken seriously by students and teachers, it is a mighty big problem to be solved by a youthful mind. That it can be properly solved by the average mind in three years of six months each, as recommended, I believe to be unreasonable to think and know to be impossible to accomplish. This course, while not quite complete according to modern requirements is a really *comprehensive four years' course,* unless it is huddled through after the fashion of the old two-year schools, and should not be degraded into a *pseudo-scientific three-year course of six months each.* Such an attempt is full of contradictions.

But the proposition becomes "contradictio ad absurdum," if we scan the recommendations for the "entrance examination" (page 406, A. V. Review). Save me the shame, Mr. Editor, to

*(c) Soundness is made a subdivision of surgery, and (e) jurisprudence one of zootechnics.

recapitulate them; they constituted the education that is required of the day laborer to cast his vote at election, and skilled labor and the trades exact often more of their members. It is sufficient for a course in farriery, but utterly insufficient for one in veterinary medicine. In the army we ask more, by examination, of a commissary-sergeant and quartermaster-sergeant, who handle groceries and general merchandise for which they are paid $35 per month.

True, this is the so-called "minimum requirement," but where is *the* requirement that we can hold up before the world without humiliation? Sorry must we be, indeed, when, after twenty-five years or more of struggle for a better preliminary school education by the many of our brightest, most enthusiastic and honorable veterinarians, all of their noble impulses, labors, suggestions and hopes are made to collapse into a dead naught by such a public declaration of educational impotence. I know of all the arguments, pro et contra, on the question of this preliminary education, and do not desire to enter into their discussion if I can keep out of it. But I do say that, as an army veterinarian, I shall fight this particular feature until the last breath of my life, as it directly and "with intent to kill" traverses our aims in the army to become commissioned veterinarians, to represent our science with more dignity and be enabled to give to the government the full measure of our scientific and practical capabilities.

At this juncture I must declare my firm belief that we shall not be granted a commission in the army until we exact of our future veterinary candidates for the army service the same preliminary education as is required by the medical department of the army, and this by our own wish and petition. This is, in extract, as follows (G. O. 134, W. D., June 15, 1906):

"(6) Written examination on the following subjects: mathematics (arithmetic, algebra and plane geometry), geography and general history, general literature, Latin grammar and the reading of Latin prose. English grammar, orthography and composition will be determined from the applicants' examination paper.

"Candidates claiming a knowledge of ancient or modern languages, higher mathematics, or scientific branches other than medical, may be given examination therein.

"This examination will be omitted in the case of applicants holding diplomas or certificates from reputable literary or scientific colleges, normal schools or high schools, or of graduates of medical schools, which require an entrance examination satisfactory to the faculty of the Army Medical School."

The classification of veterinary colleges, as set forth in this report, is an innovation upon which I congratulate the members of the committee. Their scalp will be demanded by those who feel hurt, but it must bear new fruit. Anyone acquainted with the innumerable attempts, made in the years gone by, to *fix* a "uniform standard," a "single standard," a "minimum standard," etc., for our American veterinary colleges, has long since come to the conclusion that they have been a dismal failure. That the nineteen colleges of to-day, as enumerated in the report, all of different age, foundation, endowment, faculty and leadership, should be of *one* class, is impossible because unnatural. That eleven of such schools can be of one class is at least improbable from the same reason. If four, six, or perhaps seven of them could be made really first-class, we could congratulate ourselves in America upon this number. Then we could cease to be clogged by our *weakest* members among the colleges and be induced to follow the leadership of the *strongest*. But this would imply that these first-class colleges as conform to Resolution VIII. of the Seventh International Veterinary Congress of 1898:

"The Congress resolves:

"1. That intending students of veterinary medicine should possess the certificate of university maturity (which is equivalent in America to the degree of B. A. or M. A.).

"2. That the duration of the veterinary studies should be at least eight terms" (which means four years of study or more).

This accomplished, such colleges would be of *one* class, of the *first* class. They would without trouble propose and accept *one* veterinary degree, an aim impossible of achievement in the chaos in which we are groping at present. Finally, they would furnish a "base of supply" from which the Department of Agriculture could draw its veterinary inspectors, the army its veterinary officers, the veterinary and agricultural colleges their instructors and professors, the states and municipalities their health officials. Heaven may grant that we may witness some day the realization of such or a similar plan of professional veterinary evolution.

OLOF SCHWARZKOPF.

ARMY VETERINARY NOTES.

According to the *Army and Navy Register,* of September 5, Brig.-Gen. J. B. Kerr, Commandant of the Mounted Service School, Fort Riley, Kansas, in his annual report ending August 31, 1908, recommends additional veterinarians for this and other military schools, and incidentally pays this tribute to the efficient work performed by our veterinarians at Fort Riley:

"*Training School for Farriers and Horseshoers.*

The work of this school continues to be satisfactory.

A certificate as horseshoer is issued to only such men as are qualified to earn the extra compensation now furnished for the actual shoeing of the animals of an organization. Certificates as assistants or helpers are issued to the other worthy cases.

In connection with the bill recently introduced in Congress for extra officers to fill the many details away from organizations attention is invited to the necessity of a certain number of extra veterinarians. The two instructors in this training school have been retained on account of their special qualifications and their regiments are deprived of their services. Another is urgently needed. The Military Academy, service schools and remount depots should be supplied with veterinarians without crippling regiments."

In pursuance of General Orders No. 79, War Department, May 14, 1908, prescribing a physical examination, annually, of all officers below the rank of major, the army veterinarians are now undergoing this examination at their different stations. The object of this medical examination is to ascertain those officers who have become physically disabled in active service, and if found incapacitated, to retire them from active service. Under the present law army veterinarians are not entitled to retirement and can be discharged at the pleasure of the Secretary of War, but the War Department has so far been generous in this respect and has retained in active service several veterinarians who have become physically disqualified, one of them being now 73 years of age. This order is, to a certain extent, a test case as to whether the pending Army Veterinary Bill in Congress, which contains a threatening clause that veterinarians found physically disqualified upon the enactment of this law, may be discharged from the service without compensation. We sincerely hope that the present generous policy of the War Department will be con-

tinued until Congress has passed some law to put the army veterinarians on the same footing in this respect as all other officers of the army.

Three army veterinarians attended the Philadelphia meeting: Dr. G. E. Griffin, Field Artillery, and Dr. F. G. Foster, Cavalry, officially, and Dr. Chas. B. Jewell, Fort Riley, privately. Dr. Jewell was elected one of the vice-presidents of the A. V. M. Assoc.

Applications to take the Civil Service examination for additional veterinarians in the Department of Agriculture of the State of New York, should be in the hands of the State Civil Service Commission at Albany on or before October 10.

The Tuberculin Test Sustained by the Court.—In the case of the Dairymen vs. the Board of Health of Meadville, Pa., Dr. C. C. McLean, Milk Inspector, the Court of Quarter Sessions, on September 14th, handed down a lengthy opinion in favor of the Board of Health.

The plaintiffs and the defendant differed only as to the means of determining the presence of tuberculosis in milk-producing cows. The former suggested that the disease be determined by physical inspection. The latter insisted upon a scientific test, and, in this case, the tuberculin test. Both agreed that the milk of a sick or diseased cow is not wholesome, should not be used, and that such cows should be segregated from the balance of the dairy.

According to the testimony offered the tuberculin test is perfectly harmless. Upon agreement it was conceded that all dairymen might secure such a test without any expense by application to the state sanitary board.

The Court makes the deduction that "It, therefore, follows that the only conceivable reason for resisting the tuberculin test, while admitting that the milk of sick cows should not be sold, is that the tuberculin test discovers and exposes a larger number of sick and diseased cows than could or would be discovered by a physical examination suggested in the bill." The case was decided in favor of the defendant. The members of the profession will be glad to learn of Dr. McLean's victory in court because he intelligently maintained the profession's position and also because of their interest in his welfare.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M. D., V. M.

A Case of Vomiting in a Horse [*J. Paul, G. B. V. C.*].—With the history that the horse was off its food and looked dull and depressed, the author called and found the animal vomiting, a condition which had occurred suddenly. The horse had been worked after his meal, and on his return he refused eating. Rupture of the stomach was suspected. Aromatic spirits of ammonia and ipecac were prescribed. At a subsequent visit, finding the condition the same, subnitrate of bismuth, extract of belladonna, pulverized ipecac and gum acacia were prescribed, to be given in an electuary every three hours. The first dose partially checked the vomiting, and after the second it entirely disappeared.—(*Veterinary Record.*)

A Case of Hydrothorax [*N. M. Swanston, Capt. A. V. C.*].—Concise record of the case of a horse that took pneumonia complicated with pleurisy. On the fourth day of the disease four quarts of fluid were drawn off; then the next day, one; fourteen days after, ten more; and then, three days later, twenty-six. Four days after another puncture gave but four ounces. The horse died. The lesions found at post-mortem were those revealed in similar cases.—(*Veterinary Record.*)

Splenic Abscess in a Horse [*F. J. Dunning, G. V. S.*].—Bay mare of nine years presented the following symptoms: Very dull appearance, capricious appetite, head carried low, extremities cold, hind legs swollen, mucous membranes congested, pulse feeble and quick, respiration accelerated, temperature 105°. Fœces and urine normal. Percussion revealed dullness on the left side, which seemed to involve the posterior lobe of the lung. Auscultation gave crackling noise. Diagnosis unsatisfactory. Animal placed on observation; gets rapidly weaker, tries to lay down, drops and dies. Post-mortem: Blood stained fluid in the abdomen. Huge mass attached to the left side of the stomach.

It is ruptured and its decomposing contents have escaped. It was an abscess of the spleen with much new tissue formation and weighing exactly 40 pounds. Peritonitis and enteritis were also present. The abscess involved the external wall of the stomach, but no foreign body could be found.—(*Veterinary Record.*)

Uterine Hernia in a Mare [*W. Waters, M.R.C.V.S.*].—Aged eight years, this mare, near her time to foal, is found after two or three days of discomfort with a large swelling of the udder, about the size of a man's body and extending from the usual seat of the udder to the xyphoid cartilage of the sternum. It hangs about one and a half feet from the ground. The udder is of course carried forward so that each teat seems as big as and in the position of the sheath of a gelding. This condition had occurred during the night. Diagnosis was certain. The mare was slung. But after five days, labor set in and the slings were taken off. The foal was born alive but soon expired. The mare improved, but of course remained with her hernia. The swelling has considerably reduced and the mare can yet be a useful animal.—(*Veterinary Journal.*)

Death from Hemorrhage from the Posterior Vena Cava, Due to Ulcerations [*H. Gamble, Capt. A. V. C.*].—Horse has colic. Gets pint of linseed oil with one ounce of turpentine and enema. He grows worse. Receives 8 grains of morphia. No improvement and he soon shows signs of imminent collapse. He dies in two minutes.

Post-mortem.—Large blood-clot in abdomen. When this is taken off and the intestines are removed, two bleeding points are observed on the under surface of the vena cava, about five inches back of its entrance to the anterior fissure of the liver. These points were ulcerations and opened into the vein, which was the seat of extensive phlebitis. Death was due to hemorrhage from the vein. All the other organs and tissues were normal.—(*Veterinary Journal.*)

Case of Physostigmine Poisoning [*Edward Elphick, M. R. C. V. S.*].—Horse has colic and symptoms of impaction. Linseed oil failing to relieve, one and a half grains of physostigmine sulphate was given subcutaneously. Half an hour after there are intestinal murmurs, flatus, no increased uneasiness. Pulse is fairly strong and slow. Respiration slightly increased.

Temperature 102° F. An hour and a half later the animal is in a state of collapse. Respiration up to 60. Pulse is hardly perceptible, pupils contracted. The mucous membranes are cyanotic, the temperature subnormal and the extremities are cold. The bowels have moved three times and micturation has taken place. Treatment: Stimulants, hot blankets, hand-rubbing and bandages on the extremities. In the evening the animal improved and ultimately got well.—(*Veterinary Journal.*)

Three Cases of Heart Disease in Horses [*W. E. Schofield, Capt. A. V. C.*].—1st. Has been treated for intermittent fever. Examination of the heart showed only a certain amount of weakness of the beats. The animal dropped dead suddenly during the night without a struggle. Post-mortem: Mitral valve thickened and dark purple in color. Acute endocarditis is also present. Tricuspid is also diseased, but to less extent.

2d. This animal dropped dead while at work. Post-mortem: Heart larger than usual. Its tissue is firm and of good color. Mitral and tricuspid affected with verrucose endocarditis of some standing.

3d. One morning this animal suddenly dropped dead. Post-mortem: Heart appeared normal externally. The mitral valve is extensively affected with verrucose endocarditis. The tricuspid quite normal.—(*Veterinary Journal.*)

A Remarkable Accident to a Mare [*G. Maynall, M. R. C. V. S.*].—The history of a mare that had the skin of the head torn by being caught on a stake of a box-stall and had a large wound with a piece of skin loose and hanging measuring about one foot by nine inches. The entire cheek was uncoverered and the tear extending to near the chin. Attempts to obtain rapid cicatrization with stitches was only partially successful, and it took forty-six days for the healing process to be completed.—(*Veterinary Journal.*)

Protrusion of Small Intestines Through the Abdominal Wall.—Recovery [*Capt. Griffith, A. V. C.*].—In taking a jump, a mare came in contact with a stake and tore her abdomen. The intestines protruded, and about eight feet of the bowels were exposed. With careful antiseptic preparations these were returned, not without some difficulty, and the wound closed with stitches. Four silk sutures were applied in the muscles and five in the skin. During convalescence the mare had several

attacks of colic which gradually became lighter. The animal was discharged after seventy-four days of convalescence. At one time a slight discharge was observed, being due to one of the deep sutures. Since her recovery the animal has been again under treatment for abdominal pains.—(*Veterinary Journal.*)

Clinical Notes [*E. Clide, Lieut. A. V. C.*].—1st. *Abscess in the pelvic cavity.*—One month after being castrated, a horse has abdominal pains. His temperature is up to 102°. Rectal examination reveals a short distance in the rectum a large swelling situated on the right side. Forward, as far as the finger can reach, the bowels are quite immovable. The swelling is hard and seems as large as a cocoanut. Abscess is diagnosticated. Unsuccessful attempts were made to disperse it by manipulations. The animal died after a couple of weeks. The autopsy showed a thick-walled abscess in the wall of the rectum. It contained pus and cheesy debris. A loop of the floating colon was firmly fixed by new tissue round the right internal abdominal ring. There were also a few smaller abscesses in the gastro-splenic omentum. There was no generalized peritonitis.

2d. *Ascites due to cirrhosis of the liver.*—An American stallion donkey has been more or less under treatment since six months, suffering with general debility, irregularity of the bowels and capricious appetite.

All kinds of treatment have failed, and finally his condition is such that he is destroyed without a satisfactory diagnosis being arrived at. Autopsy: Thoracic organs normal; liver enormously enlarged, weighing forty-two pounds. It was light in color and with the lobulated appearance very marked from extensive cirrhosis. Very little normal liver tissue was left. About two gallons of clear, watery, dropsical transudate were present in the peritoneal cavity. The kidneys were pale and flabby.—*Journal of Compara. Pathol. and Therap.*)

FRENCH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Fracture with Sequestrum of the First Pastern Following a Cutaneous Quittor [*E. Larieux, Army Veterinarian.*].—In December, 1907, a mare, eight years of age, is laid

up for cutaneous quittor of the left foreleg. Recovered after about two weeks. She is after four days disabled again, being lame and having the lower part of the same leg very much swollen. A blister and rest are prescribed, and after nearly two months she resumes her work. One month later she is again laid up, lame on three legs and with a similar condition of the coronet and fetlock. With another blister she has so improved that an attempt is made to trot her, when she stumbles, and her condition gets worse and worse notwithstanding treatment. She does not stand up any more and, always lying down, she is soon covered with bed sores. Incomplete fracture is suspected. In the presence of her bad condition she is destroyed. The entire lower part of the leg, coronet, fetlock and lower extremity of the cannon is surrounded with very hard, lardaceous tissue, where several fistulas are running; some pus surrounds the joint. The first phalanx is rather deformed in its superior half by extensive osteitis. The super-internal part of the bone is gone, and on the centre there is a sequestrum, loose and surrounded with little splinters of bones. The lesions of osteitis extended as far as the lower end of the metacarpal bone.

The author considers that the cutaneous infection, extending deeply, had spread to the fetlock, giving rise to a rarefying deformans osteitis, with fracture taking place at the moment the mare was made to trot, and finally causing the formation of the sequestrum.—(*Revue de Pathol. Compar.*)

Curious Case of Diaphragmatic Chorea [*M. M. Demora and Adriansen.*]—Horse has traveled on railroad for five hours. At its arrival he refused to drink and has several chills. The mucous membranes are injected, the pulse small and the temperature 38°. He gets 10 centigrams of pilocarpine. The next day the diaphragmatic chorea is well marked. The jumpings of the contractions are 56 in a minute. Mustard poultices, opium and chloral drenches are prescribed. Seen six times during the day he has the diaphragmatic contractions all the time, but they are less frequent and weaker. Second sedative drench is given in the evening. The next day same condition. The contractions are stronger, more frequent, and again 56 per minute. Auscultation of the heart reveals a double movement of the first beat. Chloral per rectum is given. Then bromide of potash in 20-gram doses is given. After having taken 30 grams, improvement manifests itself, although the double beating of the heart

persists. The horse now takes liquids, but with difficulty, and drinks like a dog by lapping. He takes the drinks containing bromide better. The following day the symptoms return more severe than ever. Suspicion is aroused that the animal is subject to this trouble and that he is in the habit of receiving bromide from the dealer to conceal his affection. During the day 40 grams of the bromide are given. After two days the horse seems to be in perfect health except the condition of his heart, where the double beat is always heard. To insure our suspicion, say the authors, we stopped the bromide for one day and gave in place the iodide. The symptoms of the first day return in a few hours and the bromide had to be resorted to again to relieve the horse.—(*Rec. de Medec. Veter.*)

Invagination and Prolapsus of the Colon and Cæcum in a Dog [*Mr. Parent*].—Six weeks' pup, nine days after receiving the first Phisalix vaccination against distemper, has intestinal hemorrhage. The blood is in the state of nature, red, with an odor sui generis, and has been expelled during the day two or three times every hour. There is no vomiting. The next day a sausage-like body is felt in the abdomen about 10 centimeters long; it is movable, elongated, and situated in the upper part of the abdomen. It is an invagination of the colon. Washing of the intestinal tract by long enemas are prescribed, with boiled water, and the animal being held with the hind parts raised. No change is obtained except that the bloody fæces have passed away. After a few days there is prolapsus of several centimetres of the intestines. They are returned in place and sutures of the anus applied. But nothing would give a permanent result. It is not a true prolapsus, but the invaginated colon which makes its appearance on the outside.

This condition was allowed to remain, and it was only after over two months that surgical interference was decided upon. Laparotomy was performed. A certain portion of the invagination was relieved without difficulty; another portion demanded more care on account of easily broken adhesions, but in the last portion these were such that it was impossible to separate the portions of intestine glued together. Resection of the intestine was made and both ends of the intestines brought together, but the dog died the following day.—(*Rec. de Medec. Veter.*)

Treatment of Canker in the Foot [*Dr. Drouet, Army Veterinarian.*].—It is the record of a success obtained in the

treatment of this troublesome disease with iodoform. Since several months an animal was under treatment for canker of three feet, the two hind ones and the left fore. All known and recommended treatments had been tried without good results when that with iodoformed ether was heard of and resorted to at once. It proved perfectly successful, and in a short time the animal was able to resume work. He was not only cured but radically so. Since two months no signs of relapse have been observed.—(*Rec. de Medec. Veter.*)

Strychnia Poisoning of a Dog. Recovery by Peritoneal Injection of Chloral [*Mr. Bringard*].—Called to a dog which shows extraordinary nervous symptoms, possibly rabies, the author finds an animal which is laying on its side, has tetanic accesses, returning at close intervals, resembling electric discharges. The legs are stiff. There is opisthotonos. The teeth are tightly closed and abundant saliva flows from the commissure of the lips. All these are of the nature of strychnia poisoning. Indeed the dog has been well all day and has run out, where he has mussed through all kinds of swills, and it is probable that in one of them he has picked up one containing some of that poison, as in fact it was but a few minutes after he had come in that he was taken ill. With a syringe of Pravaz an injection of one gram of chloral dissolved into five of water was thrown into the peritoneal cavity. In two minutes the anæsthesia was complete. All the muscles were then relaxed. After about half an hour, although the dog was still asleep, the contractions reappeared as strong as ever. But by degrees they diminished in severity, and when the dog woke up at the end of one and a half hours they were all gone and the dog had recovered. This is a new treatment that lovers of dogs will bear in mind. For the author the dose to employ must be estimated between 20 and 25 centigrams for each kilogram of the animal. The chloral must be dissolved in four or five times the volume of water.—(*Bullet. Veter.*)

BELGIAN REVIEW.

By Prof. A. Liautard, M. D., V. M.

Synovectomy of the Tarsal Sheath in a Horse. Recovery [*Prof. Hendrickx*].—This operation was performed upon a horse which had been treated previously without success

with two injections of tincture of iodine made in the right tarsal sheath and followed by deep actual cauterization. After these treatments the lesion, instead of improving, had grown worse, and the lameness was so severe that the animal had to be laid up for good and became useless. The right hock measured 64 centimetres in circumference when it was decided to resort to the operation, viz., the excision of a flap of the tarsal sheath, made with all aseptic precautions possible so as to avoid its infection.

A cutaneous piece of skin, limited by elliptic incisions in shape and measuring 15 centimetres in length upon 7 in width, was removed; the tarsal was first punctured so as to remove a certain quantity of synovia and then a piece of its walls, of the size of the flap of skin dissected, was excised. Clots of fibrine and fibrinous bands within the sac were removed, and the edges of the wounds were stitched with catgut for the sheath and silk for the skin. An elastic and dry dressing was applied enveloping the entire hock. The next day the horse stood on his leg; the general condition was good and improvement was gradually exhibited in his movements. After fifteen days cicatrization was complete. Daily applications of tincture of iodine stimulated the resorption of the inflammatory exudate. In five weeks there remained nothing of the previous trouble and the horse resumed his work.—(*Annales de Belgium.*)

The Use of Boric Acid for the Preservation of Alimentary Products. Its Toxicity [*Prof. G. Dupuis and L. Coppens*].—It is one of the disinfecting agents most used on account of the weak irritation it produces and of its innocuity when taken internally. Its antiseptic qualities and the weakness of its toxicity have contributed to the generalization of its use. It therefore seemed to be the ideal alimentary antiseptic, and for that reason was rapidly called upon for the preservation of dried meats, fish, milk, butter and margarine. But hygienists were watchful, and they ask if it was not dangerous to add boric acid to alimentary products. Some objected to it entirely. Others said it was not dangerous. Results of experimentation and clinical observations show that the question was worth being taken into consideration. Animals have died after three or four weeks of a diet mixed with boric acid. Men taking it internally in treatment have exhibited manifestations more or less marked of intoxication. Even one case has proved fatal after the washing of the stomach. Conclusions: Boric acid must be considered as an antiseptic whose internal administration is not entirely without danger.—(*Annales de Belgi.*)

Experimental Researches Upon the Hypnotic Action of Bromural [*Prof. A. Van Den Eeckhout*].—The properties of this new preparation have been the subject of a series of experiments by the author, and he has observed that out of the whole series of compounds of valerianic and butyric acids with which he has experimented, Bromural was the only one which kept its hypnotic action on animals. And he concluded that his experiments showed it to be possessed of rapid effects for frogs, rabbits and dogs that, administered in therapeutic doses, it gave rise to no nocive secondary phenomena, that it exercises its principal effect on the cerebrum and leaves the bulb and marrow intact, that it was harmless, as large doses are seldom fatal. It possesses also a secondary action upon the respiratory centre, while therapeutic doses scarcely influence it; larger ones do, as observed by the reduction in the quantity of air expired. Blood pressure is not affected by it and remains normal.—(*Annales de Belgium.*)

Treatment of the Femoro-Tibio-Patellar Arthritis [*F. Hendrickx*].—This affection is very common is some countries, and although probably no statistics exists of the losses that result from it, it is likely they are very large. The positive pathogeny is yet to be established. It may be of infectious origin. Why not? At the time that it attacks colts, umbilical and intestinal infections are very easy. And there is nothing extraordinary in supposing that the stifle joint might become the centre of the localization. For the authors, the primitive lesions consist in the arthritis, manifested principally by the synovial hypersecretion and the displacement of the patella occurring as a complication. There is hypersecretion of synovia, distension of the capsular and inferior patellar ligaments, finally displacement of the patella.

Hence in the treatment it is not sufficient to eliminate the excess of synovia, but it is necessary to prevent as much as possible this displacement.

Puncture and irritating injections will fill the first indication. Hoping to realize the second the authors, after having made the manipulations demanded of the first indication, have exposed the internal tibio-patellar ligament, excised about one centimetre of it in its upper portion and with sutures sewed the two stumps together. The operation is not severe but the result was not satisfactory. And they then resorted to another method of op-

eration due to Mr. Deghilage, which has given them good results. This operation consists in the section of the patellar insertion of the external ischio-tibial muscle, thus removing the principal abductor muscle of the patella or at least reducing its action. The operation is very simple, without dangerous complications, and is one that can be recommended especially when the animal to be operated upon is not too old.—(*Annales de Belgium.*)

Upon the Puncture of the Pericardium in Traumatic Pericarditis [*Prof. Lienaux*].—Although preconized since some years by Prof. Moussu, of Alfort, this operation is not fully entered into the domain of general practice as much as it deserves. Made on the animal in the standing position in preference to being cast, which is always dangerous in those patients, the place of selection for the puncture is in the angle formed in the left hypochondriac region and the xyphoid cartilage of the sternum. With the bistouri, an incision is made; the insertion of the abdominal muscles are divided so as to reach the layer of adipose cellular tissue that separates there the sternum from the point of the pericardium. Soon this is felt distended and fluctuating with the finger pushed through; then a trocar similar to the one used for puncture of the cæcum is introduced and the fluid is allowed to escape; sometimes thin and clear, or again sanious, fœtid and mixed more or less with blood. Sometimes a drainage tube is introduced and left in place so that the flow of the exudation can continue. Of course this is only a palliative treatment and is one that can only give some special advantages, namely, the possibility of granting a new lease of life, permitting the animal to be fattened. The puncture, says the author, ought to be attempted whenever there is a dropsical condition caused by traumatic pericarditis. The use of the drain is one that ought not to be neglected.—(*Annales de Belgium.*)

A Case of Poisoning with Spirits of Turpentine [*R. Straunard*].—A heavy draught horse received early one morning a drench for worms, prepared by a druggist. He struggled very much while receiving it and he soon had colic and laid down. He passed fæces three times and had a profuse discharge from both nostrils. His pulse was 80; temperature, 40.5°; respiration, 50. The nasal discharge was rusty, spumous. It subsided late in the day. The throat is painful. The loins are stiff. A strong odor of turpentine came from the breath. Treatment: Injections of caffeine; 2 grams are made three times during the

day. It is only in the evening that they give rise to a local swelling at the point of injection. Temperature is then 40; pulsations, 66; respiration, 44. Micturition, which first was rare and painful, has become clear, more abundant and more frequent. The urine has a slight odor of violet. An injection of artificial serum was then administered and repeated the next day, activating the improvement obtained with the first. There were some slight respiratory troubles on the right side with some muco-purulent discharge, but these gradually diminished and disappeared.—(*Annales de Belgium.*)

GERMAN REVIEW.

By J. P. O'Leary, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

Red Lymph Nodes [*Med. Rat. Dr. Baum, Dresden*x.—The following brief notes are compiled from an extensive work by Baum on the presence of red lymph nodes in the domestic animals.

1st. In most of the domestic animals lymph nodes are present which by their intense red color are designated red lymph nodes. They are divided into two groups, those which have no lymph vessels (*hæmo-lymphoid nodes*) and those which have afferent and efferent vessels (*hæmo-lymph nodes*).

2d. They occur within the most extreme limits. They are found more regularly and are more numerous in sheep and cattle, occasionally in dogs, and probably not at all in horses.

3d. They may be found in almost all parts of the body, preferably, however, in the abdominal and thoracic cavities and in the proximity of the true lymph nodes.

4th. They vary in size from a millet seed to a walnut, but are usually from that of a pinhead to a pea. In number they are variable, and particularly so in the different species of animals.

5th. Microscopically they are differentiated from the two glands in that the lymph sinuses and particularly the subcapsular tissues are more prominently developed and contain a greater number of red blood corpuscles, and that the parenchyma is formed of a homogeneous, lymphoid mass which contains germinal centres; but a distinction between the cortical and medullary substance is not recognizable.—(*Deutsche Tier. Wochenschrift,* 1907, No. 34.)

The Action of the Spleen in Trypanosomiasis [*A. Laveran and A. Thuroux*].—The specific action of the spleen in infectious diseases has not yet been fully explained. Laveran has expressed his opinion in opposition to the protecting action of the spleen in malaria. In trypanosomiasis the spleen is always enlarged. Various authors have ascribed to this organ a protecting trypanolytic action. Laveran and Thuroux have again taken up the work from an experimental standpoint and from which they conclude that the trypanosomes in the spleen in vivo immediately after death have the same appearance as those in the blood. The described changes appear only post-mortem. The splenic juice has no trypanolytic properties in vitro. The course of the trypanosoma infection was not perceptibly altered in animals in which the spleen had been removed. The rôle of the spleen in the trypanosome diseases, as in malaria, seems to be limited to the retention of the disorganized parasites from entering the circulating blood.—(*Annales de l'Inst. Pasteur, 1907, page,* 593.

Tuberculosis of the Bronchial Lymph Glands Through Intestinal Infection [*Calmette, Guerin and Déléarde*].—The authors infer from their experimental investigations on animals and the clinical symptoms in children, that in all cases of tuberculosis of the bronchial lymph glands, tubercle bacilli were found in the mesenteric lymph glands even when the latter appeared to be healthy. The disease of the mesenteric lymph glands, which precedes that of the bronchial lymph glands, as in all cases of pulmonary tuberculosis in children and adults, is of intestinal origin. The infection with tubercle bacilli occurring in children and adults in the majority of cases originates in the digestive tract through the consumption of the milk of tuberculous cows or from foodstuffs, particles of dirt, etc., which have been contaminated with human tuberculous matter.—*Deutsche Tier. Wochenschrift, No.* 24, 1907.)

Dr. W. W. Courtwright, an Inspector in the Quarantine service of the U. S. Bureau of Animal Industry and stationed at Ft. Collins, Col., sustained a severe injury while attending to his official duties. He received a kick from a horse just above the left temple, which resulted in partial paralysis of one side of his body.

CIVIL SERVICE EXAMINATION.

VETERINARIAN—PHILIPPINE SERVICE.

The United States Civil Service Commission announces an examination on October 21, 1908, at the places mentioned in a list printed by the Commission, to secure eligibles from which to make certification to fill vacancies as they may occur in the position of veterinarian, in the Philippine Service, at an entrance salary of $1,500 or $1,600 per annum. Appointees are allowed field expenses when absent on duty from their permanent stations.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	*Weights.*
1. Letter-writing (a letter of not less than 125 words on some subject of general interest. Competitors may select either of two subjects given)	10
2. Veterinary anatomy and physiology	20
3. Veterinary pathology	20
4. Veterinary practice	40
5. Training and experience	10
Total	100

Seven hours will be allowed for this examination.

Applicants must indicate in their applications that they are graduates of reputable veterinary colleges.

Information relative to employment in the Philippine Service, cost of living, leave of absence, transportation, climate, clothing, medical attendance, contract, etc., is contained in section 31 of the Manual of Examinations revised to July 1, 1908, a copy of which may be had upon application to the Civil Service Commission, Washington, D. C.

Age limit, 18 to 40 years on the date of the examination.

The medical certificate must be filled in by some medical officer in the service of the United States. Applicants should appear before medical officers of the Army, Navy, Indian, or Public Health and Marine-Hospital Service. If such an officer

can not be conveniently visited, a pension examining surgeon may execute the certificate. Special arrangements have been made with Pension Examining Boards throughout the country to give such examination for a fee of $2, to be paid by the applicant. *This certificate must not be executed by the family physician of the applicant.* The medical officer should indicate his rank or official designation on such certificate.

Each applicant for the Philippine Service will be required to submit to the examiner, on the day he is examined, a photograph of himself, taken within three years, which will be filed with his examination papers as a means of identification in case he receives appointment. An unmounted photograph is preferred. The date, place, and name of examination, the examination number, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the Secretary of the Board of Examiners at any place mentioned in the list printed by the Commission, for application Forms 2 and 375. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

THE Missouri Valley Veterinary Association will hold its semi-annual meeting in February.

THE Veterinary Department of the Colorado Agricultural College has a larger attendance this year than last.

BIBLIOGRAPHY.

THE PATHOLOGY AND DIFFERENTIAL DIAGNOSIS OF INFECTIOUS DISEASES OF ANIMALS. By Veranus Alva Moore, B. S., M. D., Professor of Comparative Pathology, Bacteriology and Meat Inspection, New York State Veterinary College, Cornell University, Ithaca, N. Y. With an Introduction by Daniel Elmer Salmon, D. V. M., Former Chief of the Bureau of Animal Industry, United States Department of Agriculture. Third Edition Revised and Enlarged. 127 Illustrations. Ithaca, N. Y.: Taylor & Carpenter. 1908.

This is an indispensable book to the student and to the practitioner alike. In the recent revision, Dr. Moore has amplified the text and incorporated many new facts pertaining to the pathology and diagnosis of the infectious diseases of animals brought out by the activity in the study of comparative pathology and bacteriology since the publication of the second edition. This rapid increase of new knowledge, and the elimination of obsolete methods and interpretations, made the third edition advisable.

The grouping of the infectious diseases in accordance with the classification of their etiological factors is an attractive feature of the work. The book is concise and comprehensive and in every way in strict harmony with the present state of our knowledge of pathology and differential diagnosis. We commend it to the student and to the practitioner. The subjoined Table of Contents conveys a very satisfactory idea of the plan of classification and the scope of the work:

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Prof. Coates Entertains Distinguished Guests.—Prof. W. J. Coates, Dean of the New York-American Veterinary College, entertained Docteur S. Arloing, Correspondant de l'Institut, Professeur a la Faculte de Medecine and Directeur de l'Ecole Nationale Veterinaire. Lyon, and Docteur J. B. Piot Bey, Directeur Veterinaire aux Domaines de l'Etat, Correspondant de l'Academie de Medicine, Le Caire, on their return from the International Congress. Doctor Coates had planned giving these distinguished gentlemen a dinner, at which the entire faculty of the New York-American Veterinary College, the Chancellor of New York University, Dr. Munn, chairman of the University Council; Dr. Weiss, of the old A. V. C. Trustees, and the French Consul to the United States, were to have been present to receive them; but Drs. Arloing and Bey came to the veterinary school in West Fifty-fourth street, New York, with letters of introduction, with but one day between the time of their arrival there and the day of sailing for Europe; so Dr. Coates had to content himself, after showing them through the school, with a drive around the city, during which they were shown many public buildings of note and some of the prominent private dwellings. They visited the Medical Department of New York University and were greatly interested in the Histological, Pathological and Bacteriological Laboratories, used in the education of the medical and veterinary students. They were also especially interested in the Bacteriological Department of the Board of Health; took great pleasure in noting the method of making the vaccine, and, finally, visited the Tichner-Grand "Horse Mart," in West Sixty-first street.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

The forty-fifth annual meeting was held in the auditorium of Houston Hall, University of Pennsylvania, Philadelphia, Pa., September 8, 9, 10, 11, and was called to order at 10 A. M. of the first day by President W. H. Dalrymple.

When the meeting had been formally opened the President introduced Mr. William F. Gleason, secretary to Hon. John E. Reyburn, Mayor of Philadelphia, who, in the absence of his Honor, extended a very cordial welcome to the members of the profession and their families to the City of Brotherly Love. The mayor's secretary was followed by Vice-Provost Edgar F. Smith, who in an eloquent address welcomed the A. V. M. A. within the portals of the grand old university of Pennsylvania. Dr. Smith said the invitation to the university bore the message of welcome; reminded his hearers that the university was the child of Franklin; that sixty acres in the heart of the town had been given up to educational purposes; that the profession would find itself in a congenial atmosphere, and alluded to the need of having the minds of the laity impressed with the supreme importance of veterinary science in connection with agricultural and public health progress. "Open wide the door. Enter and be happy." Sir Edward W. Patton, of Philadelphia, also spoke words of welcome. He said that veterinary medicine had been growing faster, during the last few years, than most any other branch of medical science. Dr. W. Horace Hoskins extended cordial greetings on behalf of the local members of the profession and welcomed the delegates from other veterinary associations.

The response to the several addresses of welcome was made by Dr. H. D. Gill, of the New York-American Veterinary College, in his usual able and eloquent manner.

At the conclusion of the formalities attending the opening exercises, the President delivered the annual address as follows:

PRESIDENT DALRYMPLE'S ADDRESS.

"The exalted position to which this association did me the honor of electing me at our last annual gathering has claimed

my attention almost incessantly up to the present moment, and with a gradually increasing sense of the immense responsibility it carries with it. For, to occupy the office of executive head of the American Veterinary Medical Association, which embraces this entire western continent, as well as the colonial dependencies of this great republic, is not only a position of great honor, but one, which, if conscientiously filled, demands a great deal of serious thought and earnest endeavor.

"Onward and upward seems to have been the motto of this organization from its inception, when a few earnest souls met together and called it into being, up to the present time, with its membership almost 1,000 strong; and onward and upward the motto must continue to be; a thought, however, which, although inspiring earnestness and devotion, tends to create within the hearts of those who are chosen to guide its destinies, a sense of conscientious foreboding lest the onward pace should slacken, and the upward tendency be checked by the gravitating influence of inertia, or any other factor, retrogressive in its effect, which God forbid.

"If we are to be guided in our forecast by what this association has accomplished in the past, then the future is replete with great things yet to be achieved. But we must not forget that the men who have, hitherto, 'held the tiller' form a galaxy of the most brilliant mental stars which the veterinary profession in this country has produced; some of whom have gone to their higher reward, leaving us poorer by their departure; yet richer for having lived and labored for the noble cause which we, as a profession, here represent to-day, viz., the cause of humanity in its broadest and deepest sense.

"Buoyed up with the rich legacy of earnest devotion to the interests and advancement of our noble profession which our predecessors in the executive chair have bequeathed to us, may those of our membership who are to lead and guide this great body in the future, be stimulated and encouraged to the accomplishment of even greater things, in keeping with the spirit and the demands of our modern civilization.

"I feel that I cannot proceed further without making brief allusion to the serious inroads which the "grim reaper" has made into the ranks of this association during the past year. Death is no respecter of persons—a fact which has again been fully exemplified by his having deprived us, not only of a number of earnest workers among the rank and file, so to speak, of

our membership, but of some of our leaders; men like our late lamented Roscoe R. Bell, to whose individuality, earnestness, devotion and ability this association and the profession generally owes so much for what it has achieved, and stands for to-day in this country—'Requiescat in pace!'

"I trust that the committee on necrology will draw up suitable resolutions of condolence to be adopted by this association, and that copies will be sent to the families of our deceased confrères, showing to them how deeply we regret and deplore the great loss which they and we have sustained. And we should not forget to note, also, the further loss which the veterinary profession has sustained during the past year by the removal, through death, of several distinguished representatives in other countries, who held reputations of an international character.

"I am sure it must be very gratifying to all who are in any way associated with the 'healing art,' to meet here in the 'City of Brotherly Love,' with its world-renowned university, whose medical department ranks with the highest in the land; whose diploma, if I mistake not, was the first to receive recognition in European countries, and whose Department of Comparative Medicine is an honor to any civilized nation.

"It must, I am sure, be very gratifying, also, to the members of the Pennsylvania State Veterinary Medical Association that 'Dame Fortune' should elect the annual meeting of this association in Philadelphia during the 25th anniversary of their organization, to help them celebrate the auspicious occasion.

"And, although immaterial to this body, I may, perhaps, be pardoned for adding, that there is an element of personal gratification in our meeting here at this particular time, as it was in Philadelphia, in 1894, that the speaker first saw 'the light of day' as a member of this, which is probably the most influential organization of its kind of modern times. Consequently, I have the pleasurable feeling akin to that of the young man on his return to the place of his nativity after an absence of fourteen long years.

"I believe a presidential address is expected to contain a *résumé* of all the important professional events that have transpired anywhere and everywhere during the fiscal year, and to forecast as many that may, and a considerable number that, perhaps, never will, happen in the future. Or, in other words, one is expected, in a measure, to refer to, discuss, and possibly criticize, events that have actually happened which concern the asso-

ciation and the profession generally, then venture upon suggestions for future guidance, and, finally, to draw upon one's imagination in order to make up for what one's knowledge is deficient in. I am afraid it is upon the latter that I have had to depend for the makeup of my address.

"In order to obtain an idea of what I would say, and how I should say it, I have scanned the horizon of presidential addresses from the year of my 'membership birth,' right up to, and including, that masterpiece delivered at Kansas City by my distinguished and honored predecessor, Dr. James Law, with the hope of discovering something new; something untouched; some hiatus, so to speak, through which I might be able to discern some undiscovered points or topics which would afford a clue upon which I could lay hold, in order to be able to present some new ideas, or some old ones furbished up to present-day requirements. But to my utter dismay and undoing, I found that the entire field of presidential-address topics had been covered. General practice has had its share of attention; state veterinary medicine has been touched upon; our great National Bureau of Animal Industry, with its important pathologic and biochemic divisions, has received well-merited recognition; and the schools have, by no means, been left out. In short, I found nothing but discouragement by my search, as the number and variety of topics, already utilized, included any and everything, from the life-history and pathogenicity of the lowly bacterium, and the equally lowly trypanosome, up to, and including, a most impressive eulogy on the public character and career of that distinguished American citizen, Hon. Tom L. Johnson, of Cleveland, Ohio. Is it any wonder, then, that I should have exclaimed: 'Woe is me, for I am undone,' so far as new 'thunder' was concerned.

"Our constitution tells us that one of the objects of the association is, 'to promote good-fellowship.' This, of itself, is a most laudable object, and one without which no organization can well be held together. Congregation and good-fellowship, savored with an element of conviviality, do not seem to be altogether confined to we creatures of higher intellectuality, but appear to be instinctively adopted by those lower down the scale, evidently for the sake of companionship as well as protection.

"Good-fellowship, companionability, 'brotherly love' might, perhaps, be the more appropriate term on this particular occasion—call it what we may—is a most indispensable primary fac-

tor in the accomplishment of important results in other directions sought to be brought about by such an organization as ours, as its tendency is to synthesize, rather than analyze; to unify, rather than produce discordance; to eliminate, rather than create, friction. In short, to bring about and maintain that community of good feeling among individual members which makes for the best interests of the organization as a whole.

"I think there can be little question that the American Veterinary Medical Association has been strikingly successful in its effort to accomplish, and maintain, good-fellowship among its members, when we consider the ever-enlarging annual list of applicants for membership, and the formidable and healthy growth and splendid development of the organization itself. Speaking from personal experience, I may say that there is no event of the year to which I look forward with so much pleasure as our annual gathering, with its wealth of good-fellowship; where friend meets friend, and new friendships take their birth; where professional experiences are exchanged; where mutual benefit is obtained; where the continent's brightest professional intellect is focussed. And what does it all mean? Is individual benefit the sole object to be attained? Not so! True, the individual does benefit, and that very materially. But the aim has a much wider and more beneficent scope, viz., to raise the standard of our noble profession higher, and yet higher, before the world, and to endeavor to be, and remain, worthy of the standard which we float from our 'masthead.' Good-fellowship creates unity; in unity there is power; long may it remain an unruffled factor in the membership of this great organization!

"Another object of this association, our constitution tells us, is 'to elevate the standards of veterinary education.'

"In all spheres of human effort the demand of the twentieth century is for a higher standard of education, whether it be the training of the intellect or the so-called special senses, in order to keep abreast of modern advancement in the numerous and varied ramifications into which man's effort is directed by the arts and sciences.

"Institutions of learning and of training of all kinds are constantly adding to their requirements for matriculation and graduation, and, thereby, increasing, it would seem, the difficulties to be overcome by the aspirant to proficiency, and to honors, in the different fields of the world's work. These difficulties are, however, more apparent than real, I think, when

one takes into consideration how much better the educational preparation of the youth of to-day is, on account of the great advances made in public school and high school equipment and curriculi, than it was even a decade ago. For the educational preparation of the professional man of to-day to remain in *statu quo,* would be a very anomalous state of affairs, when modern advancement and demands are calling to him ' come up higher; ' and when his present-day more advanced scholastic or academic preparation, at the other end, is saying to him, ' go up higher.'

" In order, therefore, to articulate both, that is, to meet, and keep abreast of, the demands of to-day, in the different professions, and at the same time provide more advanced work in keeping with, and to respond to the higher class preparation afforded by our educational system, generally, throughout the country, professional education and training must advance.

" May we not apply this thought to the education with which we, as an association, are more intimately concerned, viz., that of the veterinarian? There can be no doubt that the twentieth century requires, and is calling for, the man of higher education and attainment to cope with, and endeavor to solve, the many new problems that are ever springing up in the field of comparative medicine; and I think there can be no question, also, that the prospective student is, as previously stated, now much better equipped than formerly to enter upon a course of professional study requiring a higher standard of intellectual training. To meet the necessities in the case, therefore, it seems to me, we must look to the professional schools and colleges to perform their part well, as they appear to occupy the important central position, and in them seems to rest the power of satisfying the demand at each end of the line, so to speak, and which, I take it, is a position of grave responsibility.

" The veterinary schools of America, as a whole, have done a splendid work; they have fulfilled a great mission; they have educated and turned out able and capable men. But we must not lose sight of the fact that the requirements of a decade ago are not those of to-day. They are ever on the advance, and they keep on advancing. So that there must be a gradual elevation of the standard to meet those requirements. This is so in all other professions and callings. A condition imposed by the Carnegie Foundation is, that before the professors of State Universities and Colleges are eligible to be placed upon the Carnegie pension list for teachers, the requirements for matriculation at

these institutions must be not less than a specified number of units. This is going to have a very salutory effect in bringing up the standard of these great centres of learning throughout the country, because, with the entrance requirements increased, the curriculum of study is more than certain to be in keeping with the higher matriculation standard.

"It would seem that our National Department of Agriculture has caught the infection as to higher standards. Or at least, in so far as the eligibility of graduate veterinarians for special departments of its work is concerned. I cannot think otherwise than that this recent move on the part of the Department of Agriculture is in an upward direction, and in keeping with the educational spirit of the times; and although at first, and for a time, it may create a ripple of dissatisfaction in some cases, I am forced to the opinion that it will eventuate in the greatest stimulus which the veterinary profession in this country has ever experienced.

"May it not be truthfully said, that the eyes of the world, or at least, those of our foreign customer-countries, are upon the great meat inspection service of the United States? Consequently, it becomes the bounden duty of the national authorities to foster our immense export trade in meat and meat food-products by seeking to raise the standard of education for those who are to be employed in its protection.

"I know of my own personal knowledge that in Secretary Wilson the veterinary profession of America has no truer nor stancher friend, who realizes, to the full, that our monumental live stock industry, on which such a large proportion of our citizens depend for their living, can never attain to its greatest measure of success without a thoroughly educated and equipped veterinary profession. And if such is deemed a necessity to guard the health of those who consume our meats, and for the benefit of the people generally, is it not just as much so for the private citizen, in order that he may be the recipient of abler and more enlightened professional service?

"I think it is a fact, and I believe all will agree with me, that the great school of comparative pathology in this country is the National Bureau of Animal Industry, to which the profession is indebted, more than to any other factor, for the advancement that has been made in this important branch of work in recent times, and whose researches claim the attention of scientists, not only on this western hemisphere, but all over the civilized world.

Can it possibly maintain this well-earned reputation unless there be a gradual elevation of the standard of education to equip its staff to meet the ever-growing demands of the times?

"Permit me, here, to quote a short paragraph from the summary of an address on 'What the American Medical Association Stands For,' by Dr. Geo. H. Simmons, of Chicago, before the Kentucky State Medical Association last year:

"'It (the American Medical Association) stands to-day, as it has stood for sixty years, but now in an entirely practical way, for a higher standard of medical education, for a gradual elevation of this standard, until the physicians of the United States shall equal in scientific attainment, as they equal in intellect, the physicians of any other nation on earth.'

"May we not apply the foregoing to our own case? For, has the medical profession any juster grounds for such a claim than has the veterinary profession? Surely not!

"A further short paragraph from the summary of the same address might also be apropos here. Dr. Simmons says:

"'The American Medical Association stands for uniform legislation in all the states; for a law based on principles adopted after careful scientific study of the problems involved that shall be equitable and just, and that shall make possible rational reciprocity among the states.' Which refers, of course, to the medical practice acts in the different commonwealths.

"To obtain this 'rational reciprocity' in the medical profession, with its many different schools of medicine, and its large numbers of institutions representative of each school; and, besides, the many graduations in the quality and value of the different diplomas, must of necessity, it seems to me, be surmounted by much greater obstacles than would be the case with the veterinary profession, with its comparatively limited number of diploma-granting institutions, and with its one main allopathic school.

"The trend of professional opinion, both medical and veterinary medical, I think, seems evidently to be in this direction of reciprocity among the states; and which I believe is a prospective condition, concerning our profession, worthy the best thought of this association.

"If I mistake not, one of the first steps in the accomplishment of this end, would be uniformity in the educational requirements, both for matriculation and graduation, in the different veterinary institutions throughout the country, somewhat similar

to that which obtains in some other countries. The 'one portal' through which to enter the profession, and a single diploma-granting body, as is the case in Great Britain and Ireland, would not, I presume, be altogether practicable in the United States, owing to certain conditions existing with us. But, if all of our veterinary colleges and schools were uniform in their requirements, and those requirements sufficiently high to meet modern demands, then their diplomas would, logically, be of equal value, which would amount, practically, to the same thing. Given, therefore, the uniformity spoken of, as regards the education of the student, both preparatory and professional, and equality in the value of the diploma, reciprocity might not only be eventually brought about, but the work of the State Examining Boards be greatly minimized, so far as testing the eligibility of graduates to practice in the different states is concerned. Or, in other words, all diplomas being of equal value, no matter from which institution obtained, would, or should, be passports to practice the science and art of veterinary medicine and surgery in whichever state the holders chose to select.

"Of course all this may savor of the wanderings of a deranged intellect, and be thought altogether ahead of our condition and time. But, I think there is no getting beyond the fact, that it would, and if ever it crystallizes will, be an ideal state of affairs, and that would make for the best interests of the profession, eventually.

"In glancing over Circular No. 133, of the National Bureau of Animal Industry, recently issued, entitled, 'Report and Recommendations Regarding Veterinary Colleges in the United States,' I was forcibly impressed with the thought, that the approval, by the Secretary of Agriculture, of his expert committee's report, will go a long way toward solving the problem of uniformity in educational requirements, and make for equality in the value of the veterinary diploma. It cannot but have its influence for good, ultimately, upon the profession, as a whole, in this country, when we consider for a moment that the National Department of Agriculture alone gives employment to over 800 members—a number about equaling the entire membership of this organization—and that they, in order to be eligible, in the future, for admission to the civil service examination for Bureau appointments, will be required to show that they are thoroughly qualified, in every way, to fill these important positions.

"I may be in error, but the 'signs of the times' seem to indicate to me that the future, and the not far distant future at that, will find a standard of education for veterinarians in this country which will enable them to 'equal in scientific attainment, as they equal in intellect, those of any other nation on earth.'

"Another object of this association is 'to enlighten and direct public opinion regarding veterinary problems of state medicine.'

"I believe that this association, through its membership scattered throughout the country, has accomplished, and is accomplishing, most excellent results in this important direction, if we may judge by the number of the states having satisfactory laws to control the different infections of our domesticated animals, some of which are communicable to human beings.

"From my own personal experience, the enlightenment of public opinion to the importance of this branch of medicine, that is, to the point of action, on its part, has, I am free to admit, been one of the most arduous tasks that I have tried to undertake during the entire course of my professional career, and I presume I am by no means alone in this experience, if the whole truth were known. It is all the more gratifying, however, when success does crown one's efforts, especially if those efforts have been encompassed around with discouragements and, apparent, insurmountable difficulties. Like some other matters we have been discussing, it is a question of education.

"The public mind, as a rule, however, is of sufficient plasticity to be moulded in the right direction, provided the proper methods are used in the operation. True, the operation is frequently of the 'major' class, and requires time, and lots of patience. But the prognosis being generally favorable, the results are worthy of abundant effort, as nothing tangible is possible of accomplishment in the absence of an educated and enlightened public opinion, which, I am sure, it may truthfully be said, this association, and reputable members of the profession generally, are endeavoring to do their part in bringing about. Would that the Congressional mind was more receptive to enlightenment with regard to the needs of our Army Veterinary Service.

"It might be appropriate, here, to allude briefly to an event of great moment that is to take place shortly, and which, if fully availed of by the members of this association, should aid us, very materially, in this important work of enlightening and directing

public opinion. I refer to the coming International Congress on Tuberculosis, which is to begin its labors in Washington City, as no doubt all of you are aware, on the 21st instant.

" This will be one of the most important and influential Congresses ever held on this, or any other continent, and the veterinary profession has rightly been given a place on the proggram, there having been provided an entire section (section VII.) which will be devoted exclusively to a discussion on ' Tuberculosis in Animals in Its Relations to Man,' and of which our distinguished ex-President, Dr. Leonard Pearson, is the worthy President.

" This will be an opportunity rarely afforded the veterinary profession of any country to hear and participate in, with eminent foreign representatives, discussions of the many important points and problems connected with the ' great white plague,' to which humanity pays such extortionate toll, and through whose insidious inroads so many of the valuable food-producing animals of this and other countries succumb.

" To attempt to control and eradicate tuberculosis without due regard to the animal source of infection, would, it seems to me, be but a one-sided effort, futile in its results, notwithstanding the opinion of a few eminent scientists to the contrary. Consequently, the veterinary profession has a most important, and I should say, indispensable, part to play in this great and beneficent work, not merely when viewed from its economic aspect, but for the sake of humanity. Let us show to the world, therefore, that we are not only capable, but that we are willing; in fact, indispensable, as combatants in the general onslaught against this insidious scourge which leaves world-wide destruction and death in its wake. I would, therefore, earnestly urge upon all who possibly can, to attend this great gathering of devoted men, whose deliberations will be heralded, not only all over this country, but throughout the world.

" The menu prepared for this annual meeting is a veritable ' feast of intellectual fat things,' ' fit for the proverbial gods,' and I feel sure that your appetites must be keenly whetted for the fray. Consequently, it would exhibit a most unpardonable lack of thoughtfulness and good judgment on my part, did I attempt to ' prolong the agony.'

" Before closing, however, there is just one other object of this association that I would like to touch upon, viz., ' to protect the material interests of the veterinary profession and present to the world its achievements.'

"Naturally, one of the main purposes of organization is for protection. That is generally understood and accepted. The question might be germane, however, How can this association best protect those interests? I don't know but that the best answer to the interrogatory would be simply to enumerate the other objects, such as, Promotion of good fellowship; elevation of the standards of education; the cultivation of medical science and literature, and the enlightenment and direction of public opinion regarding veterinary problems of state medicine, etc. All of which, when finally summed up means, I take it, education. Or, in other words, with a thoroughly educated veterinary profession, both intellectually and morally, combined with an educated and well directed public opinion, which it is one of the chief aims of this association to secure, the material interests of the profession will largely take care of themselves.

"I question very seriously if any similar organization, in any country, when we take into account the many diverse branches of work in which the membership of this association is engaged, is presenting to the world its achievements to such an extent as is this. And I believe I am more than justified in the statement, when we consider, first of all, the compilation of most valuable literature, a great deal of which is original, that every year forms the Report of our Proceedings, and which is widely distributed.

"Then let us look at the monumental amount of research work done, and the literature, showing the results obtained, by what might be termed the 'veterinary division' of our National Department of Agriculture, which is scattered to the 'four winds of heaven.'

"Have we not, also, our great professional literary medium, the AMERICAN VETERINARY REVIEW, through whose pages we are able to, and do, show to the world at least some of our achievements? And have we not the colleges, themselves, with their quarterly periodicals, endeavoring to fulfill a similar mission? Have we not, also, the veterinary departments of our State Boards of Health, and our Live Stock Sanitary Commissions working in the same cause, and to a similar end? And last, but not least, I think, have we not the veterinary divisions of our agricultural colleges and experiment stations, in almost every state and territory of this great union, engaged in the investigation of the many occult problems connected with the diseases of the lower animals, and publishing to the world their

achievements in the form of bulletins, whose number may be said to be 'legion?' Is there another country in the world, I say, with an association whose membership units can, and do, make such a showing in achievement?

"Long may the American Veterinary Medical Association continue to exhibit its wonderful accomplishments in behalf of the profession as a whole, and mankind, generally; and may it ever stand out prominently before the world, with the motto still emblazoned upon its unfurled banner, and which can be read from afar, 'Onward and Upward!'

"I trust that our Forty-fifth Annual Meeting may be an unqualified success in every particular, and that all of its deliberations may be conducted in such a manner as to promote the best of 'good fellowship' among the entire membership."

THE GREAT ATTENDANCE.

As has been the custom for a number of years, the calling of the roll was dispensed with, and a registry bureau was established at the entrance which was in charge of Mr. H. Preston Hoskins, U. of P., 1910. Every member and visitor was required to sign a card giving his name, degree, address and his relation to the meeting—whether a member or visitor—before receiving a badge. In this way the desired information was obtained.

The total number of registrations was 611, divided as follows: Members, 243; gentlemen visitors, 237; ladies, 131; total, 611. Quite a number designated as visitors are now members, having filled out their registration cards prior to becoming members. There were also others at the meeting who failed to register at all, so the attendance was even larger than the registration indicates. From the registrations made the following lists of those in attendance has been arranged:

ALABAMA—*Members,* C. A. Cary, Auburn; W. B. Fleming, Montgomery. *Lady visitor,* Mrs. C. A. Cary, Auburn.

CALIFORNIA—*Members,* R. A. Archibald, Oakland; C. M. Haring, Berkeley; A. R. Ward, Berkeley. *Gentlemen visitors,* Edward Records, Jr., San Francisco; W. L. Williamson, San Francisco. *Lady visitors,* Mrs. R. A. Archibald, Oakland; Mrs. C. M. Haring, Berkeley.

COLORADO—*Members,* George H. Glover, Fort Collins; Chas. G. Lamb, Denver.

CONNECTICUT—*Members,* Harry E. Bates, South Norwalk; Thomas Bland, Waterbury; V. M. Knapp, Danbury; G. W. Loveland, Torrington; Richard P. Lyman, Hartford; H. H. Newcomb, Bridgeport; Mulford C. Thompson, Sharon. *Gentlemen visitors,* G. Capewell Atwood, New Haven; Chas. F. Roberts, New Haven. *Lady visitor,* Mrs. H. E. Bates, South Norwalk.

DELAWARE—*Member,* H. P. Eves, Wilmington. *Gentlemen visitors,* J. R. Kuhns, Dover; J. W. Montague, Wilmington; Chas. F. Dawson, Newark; H. B. McDowell, Middletown. *Lady visitor,* Mrs. H. P. Eves, Wilmington.

DISTRICT OF COLUMBIA—*Members,* Adolph Eichhorn, Washington; A. M. Farrington, Washington; R. W. Hickman, Washington; Lee H. P. Maynard, Washington; A. D. Melvin, Washington; John R. Mohler, Washington; R. A. Ramsey, Washington; William Thompson, Washington; John P. Turner, Washington; B. T. Woodward, Washington. *Gentlemen visitors,* D. E. Buckingham, Washington; M. Page Smith, Washington. *Lady visitors,* Mrs. D. E. Buckingham, Washington; Mrs. John P. Turner, Washington; Mrs. B. T. Woodward, Washington.

GEORGIA—*Members,* Robert J. Foster, Dodge; E. M. Nighbert, Atlanta; T. E. Jago, Athens; C. R. Jolly, Atlanta. *Lady visitor,* Mrs. E. M. Nighbert, Atlanta.

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HONDURAS—*Visitor,* S. Moncado, Tegucigalpa.

NEW SOUTH WALES—*Visitor,* Thomas G. Doyle, Sydney.

NEW MEMBERS.

The total number of new members elected number 126. The various seatings of the Executive Committee were greatly prolonged in the examination of credentials of applicants, and many were laid on the table for further investigation or were rejected outright. The following is a complete list of those elected to membership:

Allen, John Franklin (Ind. V. C., '07), Greenwood, Ind.; Anderman, Frederick W., M.D.C. (Chic. V. C., '93), Hartford City, Ind.; Anderson, Wm. Albert, D.V.S. (K. C. V. C., '07), Sleepy Eye, Minn.; Axby, Leonard, M.D.C. (Shic. V. C., '03), Lawrenceburg, Ind.; Baker, John Bennie, D.V.S. (K.C.V.C. '08), Mitchell, Neb.; Bannister, H., V.M.D. (U. P., '90), Roanoke, Va.; Barnes, Clarence Lyon, D.V.M. (N. Y. S. V. C., '00), Manhattan, Kans; Becker, Charles J., D.V.M. (Cin. V. C., '08), Jamestown, Tenn.; Berg, Adolph (Berlin, '06), Philadelphia, Pa.; Biles, Charles Ross, V.M.D. (U. P., '06), Elkton, Md.; Bolich, Harry Peter, V.M.D. (U. P., '08), Ashland, Pa.; Bolser, Felty A., V.S. (Ont. V. C., '85), New Castle, Ind.; Bower, Henry (U. P., '97), Collegeville, Pa.; Carter, R. W., V.S. (Ont. V. C., '83), Jobstown, N. J.; Case, L. E., D.V.M. (N. Y. S. V. C., '08), Auburn, Ala.; Chamberlain, Frank Wilbut, B.S., D.V.M. (N. Y. S. V. C., '06), Burlington, Vt.; Conrad, Burton Wesley, D.V.S., B.Sc. (K. C. V. C., '07), Labetha, Kan.; Cosford, S. E., V.S. (Ont. V. C., '87), Rapid, S. Dakota; Cox, Harry B., D.V.S. (A. V. C., '95), Philadelphia, Pa.; Cumming, David, V.S. (Ont. V. C., '70), Port Huron, Mich.; Custis, Howard Hansell, V.M.D. (U. P., '07), Malvern, Pa.; Dick, George Alexander, V.M.D. (U. P., '04), Kane, Pa.; Dryden, Wm. A., V.S. (Ont. V. C., '82), Columbus, Ind.; Edington, Bruce H., M.D.C. (Chic. V. C., '07), Mt. Sterling, Ohio; Emig, W. H., M.D.C., V.S. (Chic. V. C., '08), Lima, Ohio; Engel, John Herman, VM.D. (U. P., '08), Philadelphia, Pa.; Exline, James C., M.D.V. (McK. V. C., '05), Walenberg, Colo.;

Farmer, Thos., D.V.S. (Chic. V. C., '88), Grand Blanc, Mich.; Fenckinck, Derk, M.D.V. (McK. V. C., '07), Chicago, Ill.; Fernsler, Frank U., V.M.D. (U. P., '02), Lebanon, Pa.; Findlay, Alex., V.S. (Ont. V. C., '91), Camden, N. Y.; Fitzpatrick, D. B., (U. P., '93), Philadelphia, Pa.; Foster, J. P., B.Sc., V.S., M.D.V. (Ont. V. C., '00; McK. V. C., '08), Huron, S. Dakota; Fox, David F., D.V.S. (Chic. V. C., '91), Sacramento, Cal.; Fraser, Walter, M.D.C. (Chic. V. C.), Fort Myer, Va.; Frederick, E. B., V.S., D.V.M. (Ont. V. C., '93, and Ohio S V. C., '00), Canton, Ohio; Fridirici, Ulysses Grant, V.S. (Ont. V. C., '90), Tamaqua, Pa.; Fuling, Geo. G. (Ont. V. C., '82), Richmond, Ind.; Goodrich, Gilbert G., M.D.C. (Chic. V. C., '05), Larke Park, Minn.; Graybill, Guy Martin, V.M.D. (U. P., '07), East Pittsburg, Pa.; Greeder, Herman, D.V.S. (Cin. V. C., '07), Detroit, Mich.; Gross, R. C., V.S. (N. Y. C. V. S., 94), Elizabethtown, Pa.; Hanewalt, David. C., V.S. (Ont. V. C., '91), Nashville, Tenn.; Hanna, Robert Lee, V.M.D. (Ind. V. C.), Brookville, Ind.; Harms, Herbert Frederick, D.V.S. (N. Y. A. V. C., '08), Pearl River, N. Y.; Harrison, Geo. H., D.V.S. (Chic. V. C., '90), So. St. Joseph, Mo.; Heiny, Edgar, V.M.D. (Ind. V. C., '08), Lebanon, Ind.; Hendren, Oliver Tripple, V.M.D. (U. P., '07), Philadelphia, Pa.; Hilty, Reuben, D.V.M. (Ohio S. V. C., '07), Bluffton, Ohio; Horner, G. W., V.M.D. (U. P., '00), Westminster, Md.; Hobstman, Edward, D.V.M. (Cin. V. C., '08), Sioux City, Iowa; Howe, Walter E., D.V.M. (N. Y. S. V. C., '97), Denver, Colo.; Hurt, G. M., D.V.M. (Iowa S. C., '04), East Lansing, Mich.; Huyett, Walter G., M.D.V. (McK. V. C., '99), Wernersville, Pa.; Jago, Thomas Edward, V.S. (Ont. V. C., '92), Athens, Ga.; Jeffrey, Fred M., V.S., Ph.G. (Ont. V. C., '87), Toledo, Ohio; Johnson, Joseph, V.M.D. (U. P., '98), West Grove, Pa.; Jolly, Charles R., V.M.D. (U. P., '90), Atlanta, Ga.; Jones, Philip K., V.M.D. (U. P., '98), Pittsburg, Pa.; Kartrade, E. H., D.V.S. (K. C. V. C., '08), Hardwich, Minn.; Keane, Chas., D.V.S. (U. of Cal., '97), Sacramento, Cal.; Kelly, Thos., V.M.D. (U. P., '06), Philadelphia, Pa.; Kelley, S. G., D.V.M. (Ind. V. C., '06), Elwood, Ind.; Kiernan, J. A., V.S. (N. Y. C. of V. S., '94), Raleigh, N. C.; Lampe, W. H. G., D.V.M. (Cin. V. C., '08), Nashville, Tenn.; Langley, Wm. Gilbert, M.D.V. (McK. V. C. '03), Dallas, Texas; Lauman, Frederick Joseph, D.V.S. (K. C. V. C., '07), Wichita, Kan.; Lentz, Frank Edwin, V.M.D. (U. P., '07), Hatboro, Pa.; Linch, Chas., D.V.M. (N. Y. S.

V. C., '05), Albany, N. Y.; Lovell, Roy, M.D.C. (Chic. V. C., '06), York, Nebraska; Mackie, Clemant Leroy, V.M.D. (U. P., '06), Towson, Md.; Mahon, James, D.V.S. (U. P., '06), Ashland, Miss.; Marshall, Henry, V.M.D. (U. P., '97); Bridgeport, Pa.; Marstellar, Ross P., D.V.M. (Ohio S. U., '05), College Station, Texas; Mauldin, C. E., V.M.D. (U. P., '04), New Orleans, La.; Maynard, H. P., D.V.M. (Ohio S. U., '04), Washington, D. C.; McAdony, I. S., B.S., M.D.V. (McK. V. C., '08), Auburn, Ala.; McCushing, Francis P., V.M.D. (U. P., '07), Keene, N. H.; McCloskey, A. J., V.M.D. (U. P., '08), Chestnut Hill, Pa.; McCoy, Franklin Clare (Ind. V. C., '07), Orleans, Ind.; McDowell, Harris B., D.V.S. (A. V. C., '88), Middletown, Del.; McEvers, Albert E., M.D.V. (McK. V. C., '08), Chicago, Ill.; McKillip, George B., M.D.V. (McK. V. C., '08), Chicago, Ill.; McNair, Fred Henry, D.V.M. (N. Y. S. V. C., '05), Berkley, Cal.; Meiser, William A., V.S., M.D.V. (Ont. V. C., '05), McK. V. C., '06), Newport, Pa.; Moody, Arthur Henry, V.S. (Ont. V. C., '85), Three Rivers, Mich.; Morel, F. F., M.D.C. (Chic. V. C., '07), Chicago, Ill.; Mueller, Ferdinand A. (Ind. V. C., '96), Indianapolis, Ind.; Morrison, W. E. D., D.V.M. (Ames, Iowa, '84), Los Angeles, Cal.; Nelson, Chas. A., D.V.S. (K. C. V. C., '08), Granite Falls, Minn.; Newhard, Irwin Chas., V.S. (N. Y. C. V. S., 93), Ashland, Pa.; Noble, George, M.D.C. (Chic. V. S., '91), Boise, Idaho; Norgaard, Victor A., V.S. (Royal V. C., Copenhagen, '89), Honolulu, Hawaii; Noyes, Ralph E., D.V.S. (K. C. V. C., '07), Jasper, Tenn.; Oesterhaus, John H., B.Sc., D.V.S. (K. C. V. C., '05), Fort Riley, Kan.; Parker, Cowles C., D.V.S. (K. C. V. C., '08), Mineola, Texas; Potter, Geo. W., D.V.M. (Ohio S. V. C., '06), Hixson, Tenn.; Prien, Otto Louis, M.D.V. (McK. V. C., '06), Laramie, Wyo.; Prouse, Wm. Caleb, V.M.D. (U. P., '07), Minneapolis, Minn.; Redhead, Wm. H., D.V.M. (Ohio S. U., '04), Cleveland, Ohio; Renter, Walter W., D.V.M. (Cin. V. C., '07), Kansas City, Mo.; Rodger, J. C., V.S. (Ont. V. C., '87), Anderson, Ind.; Rogers, Arthur B., B.S., M.D.C. (Chic. V. C., '07), Sioux City, Iowa; Rowe, John, D.V.S. (National V. C., '94), Germantown, Md.; Rustad, Alvin P., M.D.C. (Chic. V. C., '07), Fergus Falls, Minn.; Selby, Orval C., M.D.C. (Chic. V. C., '08), Worthington, Minn.; Senseman, B. Frank, V.M.D. (U. P., '91), Philadelphia, Pa.; Shaw, Chas. Wyman, D.V.S. (A. V. C., '92), New York, N. Y.; Simpson, Wm. Martin, D.V.S. (Montreal

V. C., '87), Malden, Mass.; Snyder, Eugene J., D.V.S. (K. C. V. C., '07), Kansas City, Mo.; Spear, William Henry, D.V.S. (McGill V. C., '02), Portland, Me.; Staples, William D., M.D.C. (Chic. V. C., '05), Anniston, Ala.; Stover, John Price, V.S. (Ont. V. C., '93), Shady Grove, Pa.; Tansey, Ed. J., V.M.D. (Ind. V. C., '08), Moravia, Ind.; Traum, Jacob, D.V.M. (N. Y. S. V. C., '05), Washington, D. C.; Vermilya, Ralph F., M.D.C. (Chic. V. C., '06), St. Paul, Minn.; Vulhainy, H. T., V.S. (Ont. V. C., '91), Crowley, La.; Wagoner, C. Otto, V.S. (Ont. V. C., '94), Richmond, Ind.; Walch, Clarence C., D.V.S. (K. C. V. C., '07), Sioux City, Ia.; Warnoch, David, M.R.C.V.S. (Glasgow V. C., Scotland, '89), Pincher Creek, Alberta, Canada; Weber, John H., M.D.C. (Chic. V. C., '08), Pendleton, Ore.; Weitzel, Frederick, V.M.D. (U. P., '02), Pittsburg, Pa.; Wilkins, John E., V.M.D. (Ind. V. C., '08); Greenville, Texas; Windsor, Arthur E., M.D.V. (McK. V. C., '05), Postville, Ia.; Woodfolk, George H., D.V.S. (K. C. V. C., '06), Chester, Pa.; Worcester, Harry, D.V.M. (Cin. V. C., '07), Middletown, Ohio.

RECEPTION BY THE PROVOST.

At the close of the morning session, Provost Charles C. Harrison, of the University of Pennsylvania, gave an informal reception to the delegates, and a luncheon was given by the university in the recreation room of Houston Hall. These luncheons were continued during the following days of the convention so that those in attendance were not obliged to return to their hotels in the middle of the day.

A CABLEGRAM FROM PROF. LIAUTARD.

"Paris, Sept. 8.—John Smith joins sending greetings with best wishes and hopes for better education, reforms and improvements.—Liautard."

A MESSAGE FROM DIRECTOR ARLOING.

"New York Harbor, Sept. 12.—Remercimant confraternels voeux pour success trevanz de association.—Arloing."

COMMITTEE ON INTELLIGENCE AND EDUCATION.

Since the educational problem is still uppermost in the professional mind, we give space in the following pages to the entire report of Dr. Leonard Pearson, chairman. The reading of this

report provoked a heated debate, and a motion to approve the report was lost. It was finally referred to the Executive Committee. Upon recommendation of the Executive Committee it was received and referred to the Committee on Publication for insertion in the Proceedings of the Association.

"During the past year the veterinary schools of the United States and Canada have been visited and investigated by a committee of five veterinarians appointed by the Secretary of Agriculture of the United States. The committee was appointed to gain definite information regarding the equipment and facilities for teaching in the various schools, and also to indicate to the Department the necessary matriculation examination and the course of instruction to qualify graduates for admission to the Civil Service examination. The report of this committee was submitted to the Secretary of Agriculture May 28, 1908, and is published as Circular 133 of the Bureau of Animal Industry. This circular shows the objects of the investigation, the organization and procedure of the committee, the colleges visited and it contains twenty-seven recommendations.

"The findings as to individual colleges are not published in this report, but are filed with the Secretary of Agriculture. No statistics of the colleges or reports upon any individual institution are made public. Each college has, however, received from the Secretary of Agriculture a statement as to the criticisms of the committee with relation to that institution.

"The published report (Circular 133) recommends certain minimum educational requirements of matriculation. The standard is that of the second grade examination as adopted by the United States Civil Service Commission, supplemented by history and geography of the United States and its possessions. Recommendations are also made in regard to conducting and putting in force the recommendations as to the minimum standard for matriculation. A course of study is recommended which, manifestly, is modified from the outline for a course of study that was presented by this committee at your last meeting and that is to be found on pages 92 and 93 of the proceedings of the American Veterinary Medical Association for 1907, but with regard to which the association took no action. The minimum length of the course of instruction shall cover a period of three years of not less than six months each, exclusive of final examinations and holidays. It is proposed that this course of instruction shall have as a minimum 150 days of actual teaching

in each year and a minimum of 3,200 actual teaching hours for the entire three years. The minimum amount of time that shall be devoted to each constituent part of the course is set forth. It is recommended that the course shall be graded, that exclusive night classes shall be discontinued; that there shall be at least five veterinarians on the faculty, that each of these shall have not less than three years experience in teaching or in practicing veterinary science subsequent to graduation from a veterinary college, and that not more than three of the five shall be graduates of any one college. It is advised that five of the eight groups of subjects into which the curriculum is divided shall be taught by veterinarians. Other recommendations have to do with the management of students, the admission of students to advance standing, requirements for graduation, the keeping of records of students' attendance and work, and of making reports to the Department of Agriculture.

"The nineteen veterinary colleges of the United States and Canada that were visited by the committee are divided into three groups, designated Classes A, B and C. Class A comprises eleven institutions whose graduates are recommended as eligible to the United States Civil Service Examination for veterinary inspectors in the Bureau of Animal Industry. Class B comprises four institutions whose graduates have been allowed to take the United States Civil Service Examination subsequent to 1898, but are not now recommended. Class C comprises four institutions which are new and do not yet have graduates, or whose recent graduates are not eligible to the United States Civil Service Examination and are not recommended.

"This entire report, with all its recommendations, has been approved by the Secretary of Agriculture, under the date of June 8, 1908, and it is assumed that these recommendations are now regulations and are intended to be binding upon the veterinary colleges of the United States who desire that their graduates shall be eligible for the United States Civil Service examination for appointment as veterinary inspectors in the Bureau of Animal Industry.

"Some action on the part of the Secretary of Agriculture was highly necessary on account of the numerous schools of low grade that have within recent years been established in the United States and that have been maintained in this country and in Canada. The same results might, no doubt, have been reached by the Veterinary Examining Boards of the United States, act-

ing jointly, if joint action could have been secured. Thus far, however, it has not seemed to be possible for an effective plan of co-operation to be designed or enforced for the purpose of securing co-ordinate action on the part of the State Examining Boards, for the purpose of raising the standards and improving the course of instruction in the veterinary schools. The great results that these boards have accomplished in this direction have come from the work of the more careful boards in a few of the leading states, acting independently. What the boards could not agree among themselves to do is now essayed by the United States Department of Agriculture.

"There can be no doubt that every veterinary college in the United States will endeavor to comply as nearly as possible with the standards and obligations established by the Secretary of Agriculture. The results will be most beneficial with regard to institutions of low grade. Whether the results will be equally beneficial as concerns the leading institutions of those grouped under Class A is most decidedly open to question.

"It is my understanding that all of the sections of this report are intended to be binding upon veterinary colleges, and that the approval of the Secretary of Agriculture of the recommendations makes it compulsory for all veterinary colleges to arrange their courses of instruction and to conduct their work in accordance with these recommendations, which now are rules. If this is a correct interpretation of the act and intent of the Secretary, it will be necessary for every veterinary college in the United States and Canada to make material changes in its curriculum, staff of teachers and methods. While such changes are, no doubt, desirable in some cases, it is a question as to whether many changes, made merely for the purpose of meeting the letter of the rules, would be for the better; some would positively weaken the veterinary college and its work.

"Moreover, there is also reasonable ground for doubt as to whether the Secretary of Agriculture has any right, either legally or morally, to say that all the subjects entering into the course of instruction shall be grouped and divided in a certain way, and that certain subjects shall be under the control of certain professors and other subjects under the control of other professors, or whether any useful purpose can be achieved by such an order. For example, to say that a professor of anatomy must give at least 200 lectures and 300 hours of laboratory work is to interfere with a detail of pedagogy with regard to which the

Secretary of Agriculture *has positively no right* to interfere. The essential is that veterinarians entering the service of the United States Department of Agriculture shall have a sufficient knowledge of veterinary anatomy. It is reasonable to require that the institution in which the student received his teaching in anatomy shall have adequate equipment and facilities for teaching anatomy. Furthermore, a sufficient amount of the student's time must be set aside for the study of anatomy, so that this subject shall not be unduly infringed upon by the other subjects of instruction. But to say how, or in what proportion, the professor shall divide his instruction into lectures and laboratory work, is going further than such an order can properly go, and is irrelevant. Anatomy is a subject difficult to teach by lectures. If there is adequate opportunity for dissection and if there is adequate instruction in the dissection room, it is well known that the lectures upon anatomy become, to a large extent, a matter of form. In one of the foremost medical schools of the United States the lectures on anatomy have been abolished. In all of the leading medical and veterinary colleges, the tendency is, more and more, to teach anatomy in the dissecting room rather than in the lecture room, and this tendency is quite in line with the whole trend of modern teaching, under which pupils are not merely told about things but are required to do things with their own hands, and to learn by close personal contact with the objects studied. Of course if a veterinary college with limited facilities for dissection is handicapped by larger classes of students than it can properly handle, it is then necessary to do a large part of the anatomical teaching in the lecture room, but this is far from being an ideal condition and should not have the sanction, and much less should it be required by the Secretary of Agriculture.

" I do not mention this matter for the purpose of discussing the way in which anatomy should be taught, but to emphasize the point, for the support of which numerous illustrations might be taken from this official document, that the report endeavors to establish a sort of control in the management of schools that is not appropriately vested in the Secretary of Agriculture. This cannot but produce confusion and do harm, unless the Department is willing to admit that certain parts of its peremptory regulations are not to be enforced.

" To return to the subject of anatomy, and again to use this merely as an illustration. If a precise method for teaching

anatomy may properly be required by the Department of Agriculture, then this subject should be considered by a board of the leading teachers of veterinary anatomy of North America. The committee appointed by the Secretary of Agriculture to investigate veterinary schools surely cannot claim for itself expert knowledge as to how class instruction in anatomy had best be given. This knowledge is possessed in largest measure by those who have made a careful study of the results of various methods for teaching anatomy, in this and other countries, and who have themselves had experience in teaching this branch. If this subject is to be considered in such detail as to justify the recommendation even as to the minimum amount of time that must be devoted to anatomy and as to how this time shall be apportioned between lectures and laboratory instruction, then the question had best be referred to the Association of Veterinary Faculties and by them submitted to a committee of the teachers of veterinary anatomy.

"Precisely the same type of criticism applies to the prescribed instruction under most of the other headings. Numerous, peculiar disharmonies can be pointed out. For example, there shall be 50 lectures in parasitology and only 40 in pathology. Only 10 hours, lectures and laboratory work included, need be devoted to post mortem examinations. Twice as much attention is required to be devoted to dentistry as to shoeing. Laboratory diagnosis is required to be taught by the professor of pathology, thus having a tendency to divorce the professor of the practice of veterinary medicine from the laboratory work required in the diagnosis of the diseases with which he must deal. The subjects of hygiene, including the principles of the prevention of disease, the control of infections, meat hygiene, milk hygiene, etc., is very much divided and scattered. For example, the professor of physiology is expected to teach a certain amount of hygiene, the professor of pathology gives instruction in meat inspection, the professor of the practice of medicine gives instruction in controlling infectious diseases and the professor of zootechnics furnishes instruction in dairy inspection. As shown by the development of the great Institutes of Veterinary Hygiene at some of the leading foreign veterinary schools, as in Berlin, Hanover, Dresden, Budapest, Brussels and Copenhagen, the modern tendency is to concentrate these subjects under one head; and these subjects are being best developed where such concentration is practiced. There may be some difference of opinion as to

whether physiological chemistry should be taught by the professor of chemistry or by the professor of physiology, or whether toxicology should be taught by the professor of materia medica or by the professor of chemistry, and as to whether animal locomotion should not receive attention in connection with conformation and judging rather than in physiology. The subject of the physiological action of drugs or of pharmacodynamics seems altogether to have been omitted, unless it is to be understood as included in therapeutics; in that case it is a question as to whether it might not more appropriately be handled by the professor of materia medica or pharmacy than by the professor of the practice of medicine.

"I think I have said enough to show that the Department of Agriculture is not on safe ground when it attempts, in effect, to establish, by a decree, the way in which subjects constituting the course of instruction shall be classified and divided. With all possible respect to the committee which has worked conscientiously and hard on this problem, I do not believe that the men composing it will be willing to assert that they are competent, either individually or collectively, as experts, to decide these very large and momentous questions. Questions of this kind should be referred to those responsible for instruction in veterinary schools, namely, to the Association of Veterinary Faculties. And, even then, a general, iron-clad rule for all colleges cannot be made. Local conditions must govern to some extent.

"A very remarkable requirement is that not more than three of the five veterinarians of each faculty shall be graduates of any one veterinary college. This regulation makes no reference to the competency or skill as a teacher of the members of the faculty or to the time they shall devote to class instruction and to scientific work. It merely provides that not more than a certain number shall be graduates of the same college. If a college has five veterinarians on its staff, four of whom are from the same school; or ten, eight of whom are from the same school, and all of whom are tried and proven teachers, that school cannot rank as of Class A and its graduates will be debarred from the service of the United States Department of Agriculture. But if this school shall dismiss one of its experienced and capable staff and shall employ some graduate of an inferior school, without teaching experience, and not necessarily with real ability to teach, the college may then rank as of Class A, however much the quality of instruction may suffer.

"If a college shall develop some of its men by sending them abroad, where, for long periods, they are placed in touch with the best the world has to offer in the way of veterinary education, and shall then recall these men to do teaching work in the mother institution, it may not be possible to give them employment, under this rule, however much they may know or however much they may have been influenced by other colleges, simply because they are, perhaps, graduates from the best veterinary college in America and do not have a diploma from some other inferior school. But there is nothing to prevent this vacancy on the teaching staff being filled by a man of no special knowledge or experience who graduated three years ago from the least efficient college of Class B or of Class C, and then the rules of the Secretary of Agriculture would be complied with.

"This recommendation shows complete disregard for sound principles of teaching. The question should not be as to what college a man has graduated from, but as to whether he is a well qualified and efficient teacher. This is all that properly concerns the Department of Agriculture, *i. e.,* that the men who wish to enter its employ shall have been well taught. The source of the knowledge of the teacher is immaterial so long as it is a good one. Have the great veterinary schools of other countries been damaged by using their own best graduates as teachers? Do medical colleges suffer from this cause? Eminent educators claim that the best teacher is the alumnus, who comes back to his alma mater after broad experience elsewhere; the man who knows the traditions, the faults, the obstacles of the institution, and who is able to see them in the light furnished by other colleges and who is then able to correct the faults with full knowledge. Such a man will be most likely to give his college and his classes the best that is in him—service for which he cannot be paid from the treasurer's office. What we need in veterinary faculties at this stage of our development is filial devotion to the institution of a kind that a professor employed from outside cannot give—a passion to serve the institution, irrespective of the amount of the salary check. Where can one find this loyalty to a college more surely than among her own sons? The Secretary of Agriculture must not interfere with this condition. He is badly advised if he attempts to.

"No doubt this regulation was made for the purpose of preventing some struggling veterinary college from filling their faculties with their own graduates. If this was the real intent of the committee, a better way to prevent such occurrence could surely have been devised than this sweeping, indiscriminate regulation.

"It is not at all likely that any veterinary college in North America can fully and strictly comply with the letter of every one of these regulations. Certain exceptions will have to be made with relation to the best colleges. Since this is the case it would have been far better if some of the recommendations had remained as recommendations instead of having been converted into regulations through the approval of the Secretary of Agriculture. Of course the Department may contend that the schools are not required to observe its rules, but this is not true. The penalty for not observing them is to blacklist the college and to publish to the world in an official document of the United States that the recreant college is unworthy to furnish veterinarians for the federal service. This penalty is so severe that the rules are in effect, compulsory.

"There is a very large and important question of principle in this connection which it appears should enter into my report and which should be discussed by this association. This question is as to the extent and nature of the power of the Department of Agriculture with regard to the conduct of veterinary education. Undoubtedly, the Department of Agriculture, as an employer, has the right to say that it will not employ a man to do expert work unless the individual shows that he is qualified to do the work properly. As a means of testing his qualifications, the Department of Agriculture requires what is equivalent to a letter of recommendation, in the nature of a diploma from a veterinary college. In addition, it requires the candidate to pass an examination. In connection with the recommendation, or guarantee, the Department of Agriculture is safely within its rights when it goes back to inquire into the competency of the guarantor; that is, the college that has issued the diploma held by the candidate. As proper subjects for inquiry with relation to the guarantor (the college) the Department may ask: how long is your course of instruction? What are your facilities for instruction, as to equipment and staff? Upon what terms are students admitted? What are your requirements for graduation? If it shall be evident that the institution is one that is equipped

to furnish a veterinary education of the required grade, and that its management is such as to give assurance that the rules are regularly and impartially enforced, so that there is a warrant that a graduate from such an institution is likely to have the collateral training that is required by the Department of Agriculture of veterinarians, in respect to subjects that cannot be brought out sufficiently in the Civil Service Examination, then the Department of Agriculture should recognize the diploma of that institution.

"This, I believe, is as far as the Department of Agriculture may properly go. It has absolutely no right to set up a classification of subjects, or to attempt to enforce regulations as to the internal administration of the veterinary colleges, that do not affect the quality of the instruction. It can examine things as they are, and on the basis of what it finds it may decide that the institution is sufficient or that it is insufficient. It should not, however, attempt to arrogate to itself the power to say that within the school certain things must be done in this and in that way. There may be several ways equally good. The Department of Agriculture may approve or it may refuse to approve things as it finds them. If a certain condition is unsatisfactory, a college should be informed as to the particular feature in which it is unsatisfactory. No one will deny the Department this power. But it is too early in the veterinary development in this country to attempt to organize and conduct all of our veterinary colleges in accordance with a model made at Washintgon.

"The veterinary schools of this country have developed to their present status in the face of numerous difficult obstacles. Their development henceforth must, necessarily, be influenced to a very large extent by local conditions. Local conditions cannot be disregarded and individual initiative must not be repressed.

"In the development of our schools we ought to be influenced and, to a large extent, guided by the development of the veterinary educational systems and institutions in older countries. The pitfalls that have entangled them, we should avoid. The success that they have achieved, we should endeavor to emulate. Perhaps, in a given instance, these pitfalls cannot be avoided or the successes followed if we are obliged to keep to a certain rigid course defined by the Secretary of Agriculture.

"So much by way of statement, now as to suggestion. It is admitted that it is important that the Secretary of Agriculture shall be fully informed as to the condition of each veterinary

college that furnishes candidates for employment in the federal veterinary sanitary service. As the condition of institutions cannot be learned excepting by personal visit (catalogues, periodical publications and statements of officers have, in some cases, been known to have been misleading), therefore, let the practice continue of sending around a committee of visitors who represent the Secretary of Agriculture, and let this committee make an inspection of each institution and gather statistics and facts concerning it. If it shall develop that a veterinary college is not equipped, or conducted, in such a way as to furnish the required guarantee of fitness for its graduates, let the institution be notified as to its shortcomings.

"A list could then be published every year showing the institutions whose graduates will be admitted to the Civil Service Examination, and showing those whose graduates will not be admitted to this examination. There should also be published, at the same time, a statistical statement giving, in detail, with regard to each of the various veterinary colleges of the United States, the number of teachers, the number of hours of class instruction given by each teacher and in what subject, the number of hours of instruction required of each student in each subject, the conditions under which each student was admitted to the school; if upon certificate, the source and scope of the certificate; if upon examination, the nature of the examination and the subjects examined in. A financial statement of the institution should also be obtained and published. The equipment of the school should be described and the equipment and material used in instruction in each subject should be noted. Each separate institution could then be judged upon its individual merits. A certain college is capable of training men presumably competent to render the government the services required—or it is not. Its equipment and methods are sufficient, or they are insufficient. The quality of the work is adequate or it is inadequate. Such are the questions and the only fair questions. The point that concerns the Secretary of Agriculture is not: How does this school measure by my arbitrary standard? But it is: Is the work of the school a good and sufficient one, and how does it measure up to its own standard?

"If this were done the Secretary of Agriculture would then be dealing in each case with actual conditions and facts. We would not be in the foreign and false position of formulating regulations for the conduct of veterinary schools with regard to

points upon which he has no personal knowledge, upon which competent experts differ widely, and with regard to which he has no authority.

"The condition of veterinary affairs in this country is not as it is in France, Germany and other continental countries. There the government regulates the arrangement and scope of the instruction furnished by the veterinary schools but with this important difference, which the Department of Agriculture appears to have overlooked—the government owns the schools and supports them. Here the federal government furnishes not one penny for veterinary education and is every year taking, without return, the results of veterinary teaching that has cost the schools and the states many thousands of dollars.

"There are ten state veterinary schools in this country and eleven private schools. The states make certain requirements upon the schools they support, the State Boards of Veterinary Examiners make other requirements. Any state, any examining board and any large or small employer of veterinarians has the same right to establish conditions as to how veterinary schools shall be conducted to meet its requirements as has the Department of Agriculture; and suppose these requirements shall conflict—suppose a certain examining board requires that not less than three-fourths of the instruction in veterinary anatomy shall be given in the dissecting room, that toxicology shall be taught by the professor of chemistry, and that there shall be a professor of veterinary hygiene to gather together the scattered subjects under this heading. What is the poor school to do? It will be blacklisted by the United States Department of Agriculture or by the examining board, and its graduates will be denied the right, however competent they may be, to work for the United States Government under the Department of Agriculture, or to practice in a certain state—and perhaps the state is the one that is supporting the school.

"The essence of my contention is that the whole function and power of the Secretary of Agriculture in this matter is to determine what schools are capable, and are actually training veterinarians able to do the veterinary work for which the Secretary is responsible to the people of the United States. One school may do this work in one way and another in another—both equally good. He may prescribe certain minimum requirements in so far as these relate to the efficiency of the men he may employ, but he has absolutely no right or excuse to pre-

scribe forms, methods and details of courses of instruction and of management that do not directly and necessarily effect the efficiency of the graduates as prospective employees of the Department of Agriculture. No universal standard for the arrangement and division of studies can be prescribed; the only just rule in regard to teachers is that the students shall be well taught. To go beyond this is an arrogation of power for which there is no need, that affects the Department of Agriculture and for which there is no warrant or valid precedent in history, morals or law.

"While no exception is taken to the integrity or impartiality of any number of the recent departmental committee, there would have been less criticism in some quarters if none of the members of the committee had been directly connected with veterinary schools. If the work of the committee were restricted to its only proper function, to make a survey and get facts and to report separately upon the conditions of each school, a suitable committee could easily be made up without going outside the staff of the Bureau of Animal Industry.

"Undoubtedly the general effect of the work of this departmental committee will be wholesome. If it does little or nothing to improve the good veterinary colleges, and even if it hampers and injures them, it will, at least, arouse and stimulate the bad veterinary schools or cause them to discontinue. We should, as a profession, be grateful to Secretary Wilson and to Dr. Melvin for organizing this committee and for bringing to pass the good that surely will follow its work, while we may hope that a new, safe and sound direction will be taken and that a part of their work will promptly be undone.

"There are now nineteen veterinary colleges in the United States and Canada. This does not include the contemplated veterinary schools in Alabama, Illinois and Utah. One veterinary school, a department of the George Washington University, has been established during the past year and it is to be opened this fall.

"It is significant to note that of the eleven veterinary colleges arranged in Class A by the departmental committee six are state institutions, and of the four new veterinary colleges to be opened this year, or next, three are state institutions.

"It appears that public opinion, the great power that molds policies and makes laws in this country, is finally coming to favor public support for veterinary education. This is in con-

sequence of the growing realization of the importance of a well-trained veterinary profession to the public welfare.

"As the country becomes more densely settled, and as the government becomes more mature, and our leading men permit themselves to look beyond the turmoil of the moment and consider the needs of the future, there is an ever-increasing realization of the importance of preventing the waste of our natural resources. A great deal of thought has recently been focused upon this subject through the action of President Roosevelt in calling a conference of the Governors of the states to consider means of conserving and perpetuating the natural resources of the United States. The chief attention of this conference was given to forestry; to minerals, coal and iron ore; to water powers and to navigable streams and irrigation. Not much was said about the conservation of the fertility of the soil, and yet this is by far our greatest and most enduring source of natural wealth. This is the foundation upon which American power and supremacy rest, and it has therefore, been treated quite as wastefully and destructively as the forests.

"We know now, more clearly than ever before, that the chief wealth of the United States is agriculture. Just as this critical time in the industrial and financial status of the country, the railroads, the manufacturers, the merchants and bankers are all hoping for good crops, and agree that the return of good times depends on a good year for the farmers. The national debt of the United States, the earnings of the railroads, the capitalization of the Standard Oil Company or the United States Steel Corporation are all small, as compared to the value of the crops raised on the farms of this country. Successful agriculture, then, is the keynote of the economic condition and of the progress of the United States. Great efforts are now being made through public agencies, as the national and state departments of agriculture and the numerous richly supported agricultural colleges and experiment stations, and at numerous recently established local or state colleges or high schools for giving practical instruction in agriculture, to improve farm practice and to improve the varieties of crops and breeds of animals, to introduce new crops and especially, and above all, to build up the fertility of the soil.

"It is the experience of all countries and of all times that conservative, and at the same time profitable, agriculture is not possible, on a large scale, excepting with the aid of domestic

animals. As the population increases and, with it, the need for more extensive agriculture, more animals are required. In order that these animals may do their proper part in the development of successful agriculture and in contributing to the industries and to transportation, and in furnishing wholesome food supplies for the nation, it is necessary that they shall be healthy. For the protection of the lives and health of animals reliance must be placed upon the veterinary sciences. Hence, it is important to the public that these sciences shall be developed, as they can be only in adequately equipped and supported veterinary schools.

"The support for these schools has been very meagre as compared with what older countries have found necessary in this regard. In the future they will be supported more generously. The next few years will surely witness great development in this direction, and it is high time, as judged primarily by the needs of the public and secondarily by the development of our profession.

"There is already a large, unsatisfied demand for veterinarians of special competency; men equipped to do teaching, research and public administrative work. On account of the scarcity of men of sufficient training to do this work that has to be done, it is falling into the hands of men who are not trained veterinarians.

"A great deal of milk hygiene work is conducted, very incompetently, by laymen, because there is not a sufficient number of available well trained veterinarians. A great deal of laboratory work that should be done by veterinarians especially trained as pathologists and bacteriologists, is now carried on, less efficiently than it should be, by men of no veterinary training, just because the schools, on account of their weakness, have not been able to develop a sufficient number of men of these special qualifications. If the veterinary profession is to grow into and hold these new lines of work, the equipment of the schools must be enlarged and improved. It is important to the public that the work requiring veterinary knowledge shall be done by veterinarians and not by men drawn from other fields.

"To train men adequately to do this special work, that is done in Europe by veterinarians, and that the veterinary profession here aspires to, requires extensive and expensive laboratory equipment and requires, more than all, the undivided time of highly competent men, who ought to be and must need be well

paid. The meagre income of the veterinary schools has not made it possible for the constituent veterinary sciences to be anywhere near adequately developed or taught. The older veterinary schools have taught men to deal with the ailments of individual animals; the newer, public veterinary schools must teach men to deal with the diseases and hygiene of animals in mass, from a public standpoint, as well as to deal with individual animals. As it is quite impossible to supply from tuition fees the equipment and maintenance funds that are necessary, and as few successful appeals have been made to philanthropists for the endowment of veterinary schools, it is necessary, if this work is to be done, to obtain public funds.

"When such proposals have been made they are likely to be objected to by the uninformed or the unthinking, as an effort to obtain public money for private benefit. This same objection was made, and had to be met, with regard to public support for agricultural education, for agricultural experiment stations, for the irrigation of arid lands and so so, and so on. All of this work has amply justified itself by the results that have sprung from it.

"No individual capable of helping himself and no strong corporation would continue to suffer avoidable losses comparable to the losses that afflict this country year by year, that result from the prevalence of preventable diseases of animals. They would take the only successful course that can be taken, namely, to discover and develop successful methods for preventing these losses, and then put them into operation. This is precisely what we ask the public to do in developing veterinary schools and laboratories for training veterinarians.

"Suppose for a moment that there were ten strong State veterinary colleges in this country, supplied with ample funds to make it possible for at least one man in each institution to devote all of his time, under favorable auspices, to developing and teaching some one of the major veterinary sciences. Consider how rapid would be the progress not only of these schools with their students, but of all the schools and all veterinarians of the country if ten capable, high-class men could devote all their time to veterinary physiology and ten to veterinary surgery, and ten to veterinary medicine and ten to animal engineering. The discoveries and teachings of these groups of ten would permeate the whole veterinary profession, to the enormous advantage of animal husbandry and animal industry in the United States.

"Why is it that most of our standard textbooks in all of the branches of the veterinary sciences are translations or compilations from foreign sources? It is because there are so few men in this country or in Great Britain who are so situated that they can give their best thought and energy to the development of the sciences they are interested in. They have to couple their teaching and research work with some more remunerative employment, as administration work or practice, and so they cannot do the necessary original work and produce the much needed veterinary literature. In Germany, France, Austria, Hungary, Denmark, Sweden, Holland, Belgium and Switzerland, veterinary teachers are employed by the government to teach and develop certain branches of veterinary knowledge; they devote themselves to this work and they produce the veterinary literature upon which we in this country and in England so largely depend. In the United States there is one veterinary journal; in England there are four; in France there are six; and in the German language there are seventeen, including three weeklies, showing the relative numbers of productive scientific workers in these countries. In the few instances where it has been possible in this country for men to devote themselves to and specialize upon a limited veterinary field, note the result: Consider what has been done by Law, Salmon, Smith, Moore, de Schweinitz, Schroeder, Stiles, Mohler, Ravenel, Frothingham, Connaway, Dinwiddie, Dorset and Ward.

"With ten men working, with their assistants, in ten state veterinary colleges to develop each one of the seven principal groups of the veterinary sciences, the veterinary profession would quickly be placed in a wholly different light before the public.

"In my report last year I recommended that an appeal be made to the federal government for a fund for the support of veterinary education, somewhat as agricultural education and research are now supported, but not necessarily in connection with the same institutions. The federal contribution, if made, should be not for the purpose of supporting the work of one or two veterinarians of an agricultural college or an agricultural experiment station, but should be for the purpose of maintaining complete and adequate veterinary colleges. A large part of the veterinary work that has been done in the agricultural colleges and experiment stations in this country has been of very limited or very local value.

"This is no reflection on the men who have been engaged to do this work, although naturally there have been some misfits in

these positions; it has been due rather to the inability of college and experiement station veterinarians to specialize in a limited field, owing to the poor equipment that they have had to get along with and to the lack of sufficient assistants to make it possible to cover their routine work without exhaustion.

"If a federal appropriation of a few thousand dollars a year were made to each agricultural college or experiment station for veterinary work the result would inevitably be disappointing to the profession and the public. We need a limited number of well equipped colleges in each of which there shall be a group of strong veterinarians working in co-operation. This would establish in each of these places opportunities for consultation and a favorable atmosphere to specialize upon veterinary problems. Such a condition cannot exist in an agricultural college or experiment station where one or two veterinarians are working in association with more or less unsympathetic men, engaged in other lines of teaching or investigation. To prevent the frittering away of federal grants for veterinary teaching, it ought to be provided that *not less* than a certain amount, say $20,000 or $30,000, or whatever it may be, shall be appropriated to any one state, and this *only on condition* that an equal amount shall be raised from local sources.

"No state needs, or, at this time, should have more than one state veterinary school or veterinary research laboratory. For any state to establish, under present conditions, a second public veterinary college or a second research laboratory would be most unwise and ought to be strongly opposed, not only by the entire veterinary profession of that state, but by all clear thinking citizens. To establish a second institution when the first one is unable on account of insufficient funds for maintenance to do the work that state needs and expects from that institution, would be the worst possible public policy and could have but the one effect of duplicating a weak institution and of preventing the people of the state from enjoying the benefits that would come from an adequately supported, capable and efficient school or research laboratory."

EXECUTIVE COMMITTEE.

The Executive Committee held six sessions during the week of the convention, some of which were prolonged far into the night owing to an enormous amount of accumulated business. Dr. William Herbert Lowe, chairman, presided at the several sessions.

Every member, with the single exception of Dr. J. H. McNeil, Columbus, Ohio, was in attendance, which is a remarkable circumstance when it is taken into consideration that most of the members had to journey from distant parts of the continent. Another remarkable circumstance about the Executive Committee of 1907-08 is that its membership included both the Veterinary Director-General of the Dominion of Canada and the Chief of the Bureau of Animal Industry, U. S. Dept. of Agriculture, the highest veterinary official of the respective governments, as well as two members of the expert committee appointed by Secretary Wilson to investigate the status of the colleges and members of college faculties and examining boards of North America.

The business of the Executive Committee was transacted with dispatch. A large number of applications for membership were acted upon and several important recommendations were made which were promptly adopted by the association.

COMMITTEE ON DISEASES.

Special interest was shown in the report of the Committee on Diseases, three members of this committee presenting individual papers on different phases of the tuberculosis problem: Dr. Veranus A. Moore, chairman, on "The Control and Prevention of Bovine Tuberculosis in Individual Herds"; Dr. John R. Mohler, Chief Pathologist Bureau of Animal Industry, on "Recent Studies in Animal Tuberculosis," while Dr. O. E. Dyson, of Chicago, considered the subject from an economic point of view. Space will be given in the pages of the REVIEW for the valuable report of this committee.

THE PUBLICATION COMMITTEE.

The report shows that the total cost of the 850 copies of the 1907 "Proceedings," including stenographer and all other items of expense, amounts to $2,022.79, which is about $700 more than the cost of the 1906 volume. This is accounted for by the fact that it contains 63 pages more reading matter and a great many more cuts and half-tones than the preceding one. Each book cost the association about $2.40, leaving a balance of only sixty cents from each member's dues, in addition to the initiation fees, to pay the running expenses of the association. This means that the cost of the publication will have to be kept lower or the annual dues will have to be increased.

COMMITTEE ON NECROLOGY.

This committee, Dr. A. H. Baker, chairman, reported six deaths and offered resolutions as follows, which were adopted:

Roscoe R. Bell.

It is with the most profound regret that we have to pay tribute to the memory of our late associate and esteemed friend, Dr. Roscoe R. Bell, whose death occurred February 8, 1908.

His death, though sudden, was not altogether unexpected to those acquainted with his condition. He, himself, was aware of the cause of his sickness, Bright's disease, but with that determination and energy so characteristic of him he journeyed to our last annual convention at Kansas City, Mo.

He was born in Augusta County, Virginia, on the 16th of September, 1858. His parents were William H. and Eveline Shields Bell. He leaves a family consisting of his wife, Rebecca (nee Moss), two sons, Bellmont, aged 16; Hollingsworth, aged 14, and a daughter, Virginia, aged 3 years.

His early education was obtained in the public and private schools in Richmond, Va., which prepared him for Norwood College.

In the year 1880, after completing his college course, he came to New York City.

In a short time he became a member of the staff of the *Spirit of the Times,* which he held until he became a student of the American Veterinary College. He was graduated with honors in the class of 1887 and the following year was elected to the chair of materia medica. He retained that position until 1907 when failing health forced him to relinquish that work.

Not only did his alma mater recognize his worth, but the Bureau of Animal Industry, also appreciating his ability, appointed him, in 1888, an inspector to assist in the eradication of contagious pleura-pneumonia. He retained the position until 1892 when, recognizing that he must apply his energy to his increasing practice and also to his duties as professor of materia medica at the American Veterinary College, he resigned.

Dr. Roscoe R. Bell's career as a veterinarian was threefold.

As a teacher he was successful, being capable in speech, interesting and persuasive, and always prompt at his post of duty, cordial to all; he was held in the highest respect and esteem by his pupils which the nineteen years of actual work will attest.

As a journalist, all well know that the AMERICAN VETERINARY REVIEW is a journal second to none, a fact largely due to his energy and ability.

The call-book that bears his name is a reminder of his foresight, and, being perpetual, it will ever be a reminder of him even when the numerous editorials and other journalistic records have passed from memory.

As a practitioner he was a man of keen observation and sound judgment, the result of which caused his clients to trust him implicitly and become personal friends.

His duties were never so arduous that he neglected becoming an active member in the local, state and national associations; each association honored him with their highest gift.

As president of the various associations, all will remember him as a fair, courteous, and talented presiding officer.

Dr. Roscoe R. Bell was pre-eminent among veterinarians of this continent; his acquaintance and friendship was universal. No man has devoted more time to the interests of the profession and no man has succeeded in being more highly appreciated.

Whenever, since his death, a body of veterinarians have assembled in America all have paid their mark of respect to his memory.

This association, of which he was an active member, recognizing his sterling worth, honored him with the highest gift at their disposal, and now it becomes the sad duty to honor his memory by adopting resolutions of respect and incorporating them in our records and sending a copy to the family:

Whereas, The unerring reaper has seen fit to remove from this sphere one of the most untiring, energetic, and loyal members of the veterinary profession; and

Whereas, We recognize his untiring efforts to advance the cause of veterinary science, not alone on this continent, but throughout the world;

Whereas, We recognize the great loss to this association of this brother veterinarian, educator, and journalist, Dr. Roscoe R. Bell; therefore, be it

Resolved, That we record our appreciation of him by having space set apart in our records to his memory and this obituary and resolution inscribed thereon; and be it further

Resolved, That we extend to the family of the late Dr. Roscoe R. Bell our consolation in their bereavement.

Thomas B. Raynor.

At this association's first assembling in 1863 there went forth from this city one who then typified the hope and made for the strength of to-day, a part of the record of the growth and progress of this association.

Following in the pathway of his father, associated with four brothers, who served under the same parental apprenticeship, each of whom gave more than fifty years service to his and our profession, this year 1908 records the finished work of the last of these five brothers, in the death of our colleague and co-worker, Thomas B. Rayner.

Passing far beyond the three score and ten, his last years on earth filled with the deepest sorrows and much physical suffering, we should not complain that he now rests from his labor and toil in that bourne from which no traveller returns.

Commending to every member his half century's faithful work in his profession, his deep interest and loyal support of this and kindred veterinary associations to which he gave liberally of his earthly possessions and timely aid in all their needs, we should cherish his memory as a fitting example of one who did well what he could.

To his family we extend our sympathy in recording this minute on our records in testimony of our appreciation and regard for our late fellow-member.

William S. Kooker.

Almost reaching the seventieth milestone in his well-spent life, there has passed from our midst our esteemed colleague, William S. Kooker.

Privileged to pursue his vocation, which he has zealously followed for about fifty years, until the moment of his final summons, he has entered the mysterious sleep that knows no waking.

His lifework among those with whom he daily labored fulfilled in every respect that of a true and sincere worker in all he elected to do.

To the family who mourn keenly this irreparable loss, this association extends its deepest sympathy and adds this minute to our records as a fitting testimonial to one who sought in vain glory for his every day performance of faithful work.

W. C. Bretherton.

It is with regret that we have to record the death during the last year of Dr. W. C. Bretherton, of New York City, where

he was a well-known practitioner of veterinary medicine for many years.

Albert Youngberg.

It is with regret that we have to record the death of Dr. Albert Youngberg, which occurred on September 27, 1907, from ptomaine poisoning at Selma, Cal.

Dr. Youngberg graduated from Chicago Veterinary College in 1892, practiced his profession at Lake Park, Minn., till about 1905, when he removed to Selma, Cal.

W. C. Ferguson.

It is with regret that we have to record the death of Dr. Ferguson, of Paterson, N. J., which occurred during the last year. He was a graduate of the American Veterinary College, and was a successful and highly respected practitioner of his profession."

REPORTS OF SECRETARY AND TREASURER.

Secretary Lyman presented a comprehensive report of the work of the Secretary's office and made some valuable suggestions worthy of careful consideration.

Dr. Geo. R. White presented a neatly printed report of the transactions of the Treasurer's office. Every item is enumerated. The report shows total receipts amounting to $4,353.92 and disbursements $3,315.18, leaving a balance in bank at opening of meeting of $1,038.74. The funds received during the meeting are sufficient to swell the amount to more than $2,000.

ELECTION OF OFFICERS.

Dr. Wm. Herbert Lowe, in behalf of the Nominating Committee (consisting of Ex-Presidents Robertson, Williams, Hoskins, Pearson, Butler, Winchester, Stewart and Lowe), submitted the ollowing names:

For President—S. Brenton, Michigan; M. H. Reynolds, Minnesota, and J. G. Rutherford, Canada.

For Vice-Presidents—O. L. Boor, Indiana; P. A. Fish, New York; E. A. A. Grange, Canada; C. H. Jewell, Kansas; Chas. G. Lamb, Colorado; B. McInnes, South Carolina; C. J. Marshall, Pennsylvania; John R. Mohler, District of Columbia; C. H. Perry, Massachusetts, and A. R. Ward, California.

For Secretary—H. D. Hanson, New York, and R. P. Lyman, Connecticut.

For Treasurer—G. E. Leech, Minnesota, and Geo. R. White, Tennessee.

The names were submitted alphabetically so as to avoid showing preference. The election resulted as follows:

President—J. G. Rutherford, Canada.
Vice-President—C. J. Marshall, Pennsylvania.
Vice-President—John R. Mohler, District of Columbia.
Vice-President—P. A. Fish, New York.
Vice-President—Chas. G. Lamb, Colorado.
Vice-President—C. H. Jewell, Kansas.
Secretary—Richard P. Lyman, Connecticut.
Treasurer—George R. White, Tennessee.

PAPERS AND DISCUSSIONS.

The papers presented were all of a high order of merit and covered a broad field. As may be seen at a glance, the work of the educator, the laboratory man, the sanitarian and the practitioner each received consideration. The REVIEW has been fortunate in securing copies of the papers of the greatest value, and aside from those published in this number, it will produce others monthly for several issues.

"Veterinary Science an International Institution," Hon. N. Kaumanns, Imperial German Agricultural Commissioner to the United States, German Consulate, Chicago.

'The Important Relation of the Veterinarian to the Public Health," Frederic J. Mayer, M.D., Special Medical Inspector, Louisiana State Board of Health, New Orleans.

"The Transportation of Live Stock," N. S. Mayo, Santiago de las Vegas, Cuba.

"Shipping Fever of Horses," Charles H. Jewell, Artillery Corps, Fort Riley, Kans.

"Glanders in the Metropolitan District," Harry D. Gill, New York, N. Y.

"A Clinical Examination of the Blood of Glandered Horses," S. H. Burnett and C. D. Pearce, Ithaca, N. Y.

"The Eradication of Cattle Ticks in the South," W. P. Ellenberger, Nashville, Tenn.

"The Work of the Bureau of Animal Industry in the Control and Eradication of Cattle and Sheep Scabies in the Western States," Robert A. Ramsay, Department of Agriculture, Washington, D. C.

"The Control of Hog Cholera by Serum Immunization," A. D. Melvin, Chief Bureau of Animal Industry, Washington, D. C.

"Opsonic Therapy," Robert A. Archibald, Oakland, Cal.

"The Bier Treatment," S. J. J. Harger, Philadelphia, Pa.

"Pustular Eczema," F. C. Grenside, New York, N. Y.

"Milk and Milk Inspection," C. Courtney McLean, Meadville, Pa.

"Hygiea Not the Child of Æsculapius," Lloyd Champlain, Kansas City, Mo.

"The Army Veterinarian," G. E. Griffin, 3d Artillery, Official Representative, U. S. Army.

"Disease of the Mammary Glands of Cows," Hans Jensen, Weeping Water, Neb.

"The Pathological Effects of Captivity on Wild Animals," William Reid Blair, New York, N. Y.

"The Making of American Veterinary History," D. Arthur Hughes, Chicago, Ill.

"Our Personal Responsibility to the Profession," Charles G. Lamb, Denver, Colo.

"Pyæmic Arthritis," John Spencer, Blacksburg, Va.

"The Significance of Pathology to the Practitioner," A. T. Kinsley, Kansas City, Mo.

"Shifting Lameness," Geo. R. White, Nashville, Tenn.

ELIGIBILITY TO MEMBERSHIP.

Upon recommendation of the Executive Committee, Article 6 of the by-laws, in reference to what shall constitute eligibility to membership in the association, was referred to a special committee of three members to be appointed by the incoming president, for that purpose.

THE HONOR ROLL.

Eligibility to the "Honor Roll," established in 1904, was modified, upon recommendation of the Executive Committee, to read as follows: "Members who have been in active membership for twenty-five consecutive years and continuously thereafter until death or honorable withdrawal from the association, shall be eligible to the honor roll of the association, and shall be exempt from dues. It shall be the duty of the Secretary to report the names of members who are eligible to this list at each

annual meeting. The list shall be referred to the Executive Committee for consideration and recommendation."

Upon recommendation of the Executive Committee the names of Drs. C. T. Goentner, L. H. Howard, Austin Peters and Benj. D. Pierce were placed upon the "Honor Roll."

SECRETARY'S SALARY.

Owing to the growth of the association and the additional duties of the Secretary's office the Executive Committee deemed it proper to recommend to the association that the Secretary's salary be raised to $500 per annum. The recommendation was adopted by vote of the association. The Secretary was instructed to furnish a bond payable to the association for the same amount and under the same conditions as is now the case of the Treasurer.

REINSTATEMENTS.

By recommendation of the Executive Committee the association reinstated the following to active membership: Baker, Walter L., V.S. (Ont. V. C., '88), Buffalo, N. Y.; Bird, Robert H., M.R.C.V.S. (R. C. V. S., '73), Greeley, Colo.; Dauth, Albert (Laval University, '99), Gateau de Lac, Canada; Ernest, John, Jr., D.V.S. (A. V. C., '90), Salt Lake City, Utah; Formad, Robert J., V.M.D. (U. P., '88), Washington, D. C.; Hamilton, Robert, M.R.C.V.S. (Glasgow V. S.), Victoria B.C.; Hogg, Edwin, V.M.D. (U. P.), Wilkesbarre, Pa.; Lloyd, Samuel Erdman, D.V.S. (A. V. C., '93), Baltimore, Md.; McDonough, James, D.V.S. (A. V. C., '91), Montclair, N. J.; Schaufle, Chas. A. (Stuttgart, Germany, '81), Philadelphia, Pa.; Schoenleber, Francis S., M.S.A., D.V.S., M.D. (Chic. V. C., '90); Schwarzkopf, O., D.V.M. (Royal Veterinary School, Berlin, '80), Fort Sam Houston, Texas; Staples, Shirley Bruce, B.S., D.V.S. (Louisiana S. U., '91), Alexandria, La.

RESOLUTIONS ADOPTED.

The following were submitted by the Committee on Resolutions, Dr. S. Stewart, chairman, and were unanimously adopted:

Privilege of Membership to Veterinarians of the New World—Representation From Other Veterinary Associations.

Resolved, That the American Veterinary Medical Association extend the privilege of membership to veterinarians of

the new world, and that veterinary associations in other countries of North, Central and South America be invited to send representatives to our annual meetings.

Amendment to Army Veterinary Bill.

Resolved, It is the opinion of the members of the American Veterinary Medical Association assembled in annual convention at Philadelphia, Pa., September 8 to 11, 1908, that the present Army Veterinary Bill (H. R. 11790), "To Increase the Efficiency of the Army Veterinary Service," passed by the Senate at its last session, should have the following amendment added to Section 6: "If found disqualified for active service on account of wounds or disability incurred in line of duty, their cases shall be disposed of in conformity with the requirements of Sec. 3 of the act approved October 1, 1890" (26 Stats., p. 562);

Be it resolved, That the American Veterinary Medical Association, as a body, request that the bill with the above amendment be enacted into law and that every member of this association use his earnest effort to bring this about at the coming session of Congress.

Be it further resolved, That copies of these resolutions be forwarded to the Secretary of War, Chief of Staff U. S. Army, Chairman of the House Military Committee, Chairman of the Senate Military Committee, and to the Speaker of the House of Representatives.

International Congress on Tuberculosis.

Whereas, The International Congress of Tuberculosis, which convenes in Washington, September 21, has added a separate section relative to tuberculosis of animals and its relations to man, recognizing in this act the importance of the veterinarian in the fight against tuberculosis;

Be it resolved, That the American Veterinary Medical Association extends to the Congress its heartiest appreciation of this recognization for the need of co-operative work between the medical and veterinary professions and adds its earnest good wishes for a meeting productive of good-will, as well as for the highest benefits for man; and be it further

Resolved, That the association manifest its appreciation through the attendance of the Congress by as many of its members as possible.

Distribution and Sale of Tuberculin and Mallein.

Resolved, That the distribution and sale of tuberculin and mallein should be regulated by law, with the object of preventing its fraudulent use.

Tuberculin Test of Cattle for Interstate Shipment.

Resolved, That enacted laws prohibiting the interstate shipment of animals affected with or known to have been exposed to a contagious or infectious disease, be rigorously enforced by the Bureau of Animal Industry, and that all cattle intended for breeding or dairy purposes, be prohibited from entering interstate trade, unless officially tested with tuberculin and certified as being free from disease.

Tuberculin Test of Cattle for State Fairs and Live Stock Expositions.

Resolved, That the management of state fairs and live stock expositions be requested to assist in the eradication of tuberculosis to the extent of prohibiting the exhibition of all cattle for prizes, or their exposure for sale, unless they are officially certified as having received the tuberculin test within a period of six months, and no reaction shown.

Symposia in Lieu of Reports on Intelligence and Education and on Diseases.

Resolved, That the president-elect, in organizing his committees on intelligence and education and on diseases for the incoming year, be requested to so select such committees as to provide for a symposium upon some topic affecting veterinary education, to be presented at our next meeting in lieu of the report of the Committee on Intelligence and Education; and a similar symposium upon some one important disease to be presented in lieu of the report of the Committee on Diseases, and that the titles of various papers constituting each symposium be entered in the official program of the association by the Secretary.

Commendation for the Secretary of Agriculture.

Resolved, That this association commend the Secretary of Agriculture for the investigation that he has caused to be made of the status of the veterinary colleges in this country.

Appreciation of Kind Words from Germany's Representative.

Resolved, That this association express its appreciation for the kind words of Mr. Nicholas Kaumanns, the German Impe-

rial Special Commissioner of Agriculture, and that we join with him in his wish that there shall be a closer relation between the veterinarians of the old and the new world.

Appreciation of Work of Local Committee.

Resolved, That this association express its sincere appreciation to the Local Committee of Arrangements for the splendidly planned and perfectly conducted arrangements for this meeting; for the delightful entertainment of members and visitors; for the excellent meeting quarters provided by the University of Pennsylvania 'midst surroundings which were themselves inspiring and that did much to elevate the tone and ideals of the convention; and also for the uniform courtesy and untiring labor in our behalf, which will long be remembered with pleasure by all.

INSTALLATION OF OFFICERS.

President Dalrymple appointed Ex-Presidents Winchester and Butler to conduct President-elect Rutherford to the platform, who performed their duty with due ceremony evidently to the satisfaction of all. It was apparent from the start that no mistake had been made in the choice of Dr. Rutherford. His brief remarks were pregnant with words of wit and wisdom.

After the installation of the five Vice-Presidents, Secretary and Treasurer, resolutions were passed expressing the appreciation and thanks of the association to Dr. Hoskins and his associates of the Local Committee. In response to cries of "Hoskins," "Hoskins," that gentleman appeared on the platform as "happy as a big sunflower," and voiced and bowed his acknowledgments to the assemblage of his colleagues. Resolutions especially thanking the ladies of the Local Committee and a motion extending a vote of thanks to the retiring officers were also unanimously adopted amid wild cheers of enthusiasm.

Dr. L. A. Merillat, in an eloquent speech, made in behalf of the Chicago delegation, extended a most cordial invitation to the A. V. M. A. to come to their city in 1909 which was enthusiastically applauded. No better place could be selected. Chicago is centrally located and is equally accessible from all parts of the continent.

THE CLINIC.

The clinic was held September 11th at the University of Pennsylvania, Veterinary Department, Thirty-ninth street and

Woodland avenue, Philadelphia. The visitors had an opportunity of inspecting a magnificent veterinary establishment, modernly constructed and efficiently equipped. As on previous days of the meeting luncheon was served at midday by the University for all those in attendance.

A special feature of the clinic was an exhibit of eight cases of epizootic lymphangitis. The animals were isolated in a secluded spot in a field on the opposite side of the street from the new veterinary buildings where a most interesting clinic was held by Professor Pearson. About one hundred cases of epizootic lymphangitis were in quarantine in Pennsylvania at the time of the meeting.

Operations and Demonstrations.

Prof. S. J. J. Harger, of the Faculty, directed the conduct of the clinic with great success.

I.—Bay gelding, Fistula of the branch of the inferior maxillary bone (left). Trephining and removal of necrotic tissue by Surgeon, W. Axby, Cincinnati, O. Tooth not affected, so allowed to remain.

II.—Bay gelding, Cold abscess on point of shoulder. Excision by Surgeon, J. W. Klotz, Indianapolis, Ind.

III.—Black gelding, Pus in nasal sinuses. Trephining by Surgeon, C. H. Jewell, on Williams' operating table.

IV.—Bay gelding, Spavin. Subcutaneous cunean tenotomy, followed by firing, Surgeon, F. G. Schneider, Philadelphia, Pa.

V.—Gray mare, Ringbone, near hind. Firing and blistering by Surgeon, G. H. Roberts, Indiana Veterinary College.

VI.—Black gelding, Ringbone on off fore. Median neurectomy (standing) by Surgeon, Geo. S. Fuller, Philadelphia, Pa.

VII.—Passing the stomach tube for demonstration, by Surgeon, B. F. Senseman, Philadelphia, Pa.

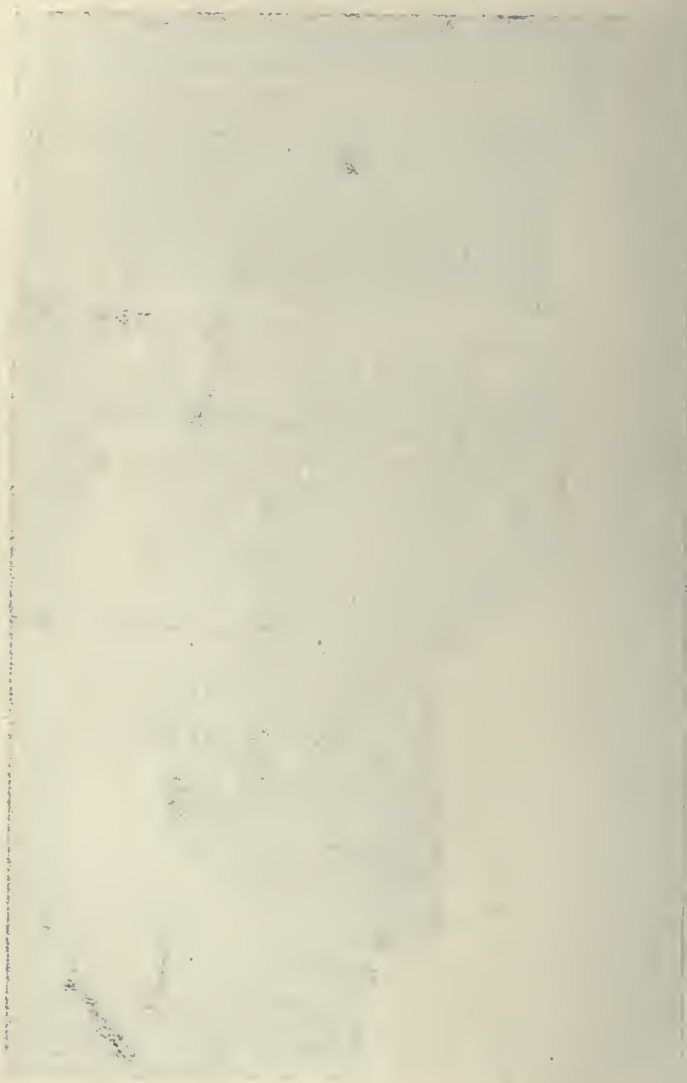
VIII.—Side-bone, Plantar neurectomy. Scissors operation, by Surgeon, H. D. Gill, New York, N. Y., assisted by E. M. Bronson, Indianapolis, Ind.

IX.—Fox terrier bitch, Ovariotomy, by Surgeon, W. G. Hollingworth, Utica, N. Y.

X.—Gray gelding, Foot lameness. Plantar neurectomy, by Surgeon, F. G. Schneider, Philadelphia, Pa.

XI.—Pony. Diagnosis by Surgeons, E. L. Loblein, New Brunswick, N. J., and T. E. Smith, Jersey City, N. J.

Philadelphia, Pa.—New Veterinary Hall, University of Pennsylvania



XII.—Black mare, Enlarged hock, lameness. Tarsal neurectomy, by Surgeon J. H. Blattenberg, Lima, O., assisted by Dr. W. E. Wight, Pittsburg, Pa.

XIII.—Collie dog, exhibited by Dr. Henry D. Martien, Philadelphia, Pa., because of the presence of two perfectly formed penises, and two bladders, both of which were functional.

XIV.—Demonstration of the use of the " stocks " of the hospital of Veterinary Department, University of Pennsylvania, by Prof. John W. Adams, of the University Faculty.

XV.—Chestnut gelding, Navicular joint lameness. Low plantar neurectomy, by Surgeon, Chas. H. Perry, Worcester, Mass.

XVI.—Surgeon Frank H. Miller, New York, N. Y., operated on bitch for adenoids.

The foregoing is an incomplete list of the operations and demonstrations performed during the forenoon. The entire afternoon was likewise devoted to surgery and a number of demonstrations were also made. There was an abundance of clinical material and some of the most eminent veterinary surgeons of America performed operations. It is useless to attempt to describe the individual operations or even to enumerate the cases further, for one had to be an eye-witness to appreciate the skill and dexterity of the demonstrators.

* * *

NOTES OF THE A. V. M. A. MEETING.

A good many went from the meeting to Atlantic City.

The sentiment seems to be strongly in favor of Chicago for the 1909 meeting place.

A reception given Tuesday evening, September 8, at the Hotel Walton, proved to be a most enjoyable affair.

The local committee of ladies proved to be such a congenial party that they contemplate continuing the organization.

Some one counted 65 members of the Ancient Accepted Order of Nobles of the Mystic Shrine at the A. V. M. A. meeting.

Commercial features were entirely eliminated from the meeting. No exhibits of drugs, books or instruments were allowed in Houston Hall.

Shriners at the A. V. M. A. meeting went over, September 12th, to Atlantic City where they were heartily greeted by the nobility of Mecca Temple who had, that day, made a pilgrimage from New York to the city by the sea.

Among the guests at the A. V. M. A. meeting were Mrs. Wm. N. Middleton, Cayuga, Canada; Messrs. Wm. N. Middleton, Cayuga, Canada; H. W. Jakeman, Halifax, Canada; Gerald E. Griffin, Havana, Cuba; N. Kaumanns, Berlin, Germany; S. Moncado, Tegucigalpa, Honduras, and Thomas G. Doyle, Sydney, New South Wales.

One of the first things that attracted the eye of the visitor upon arrival at Philadelphia was

"WELCOME A. V. M. A."

displayed over the entrance to the City Hall. The letters were composed of electric lamps and the effect was brilliant when illuminated at night.

The twenty-fifth anniversary of the Pennsylvania State Veterinary Medical Association was handsomely remembered by the delegates in attendance at the A. V. M. A. A pleasant incident occurred at the banquet, September 10, when Dr. Gill, in behalf of the delegates, presented a beautiful gavel to the Pennsylvania association through its popular president, Dr. C. J. Marshall, of Philadelphia.

It seemed strange indeed for the A. V. M. A. to be assembled in annual convention without the presence of Roscoe R. Bell, who for many years was foremost in everything calculated to advance and uplift the profession. The members, however, were glad to have an opportunity to welcome his young son, Master Bellmont Bell, who enjoyed the social features in a way that only a boy can do. He was a guest of the Hoskins family.

Dr. J. G. Rutherford, Veterinary Director-General and Live Stock Commissioner of Canada, is honored on both sides of the Atlantic. In January the honorary degree of Fellow of the Royal College of Veterinary Surgeons, England, was conferred upon him, and at the forty-fifth annual meeting of the American Veterinary Medical Association, held in Philadelphia, he was exalted to the highest honor in the gift of the profession of the western hemisphere.

The representatives of the profession assembled at the A. V. M. A. meeting at Philadelphia were very much pleased to have Hon. N. B. Critchfield, Secretary of Agriculture of the Commonwealth of Pennsylvania, present on that occasion as their guest. The Secretary is deeply interested in all scientific progress and especially in the veterinary profession. Although not generally known, he is a member of the profession himself, having qualified many long years ago under the old law.

Four of the members of the A. V. M. A., in attendance at the Philadelphia meeting, viz., Drs. R. A. Archibald, C. M. Haring and A. R. Ward, of California and S. B. Nelson, of the State of Washington, as well as a number of visitors, came all the way across the continent; three of them, Drs. Archibald, Haring and Nelson, being accompanied by their wives, yet there are members living on the Atlantic Coast who were willing to allow one of the greatest veterinary gatherings that has ever assembled in the world come and go without scarcely giving the matter a thought. Strange, indeed!

"A Morning Gallop."—Dr. W. Jacoby Lentz, late Resident Surgeon at the Veterinary Department of the University of Pennsylvania, was an especially busy man during the week of the A. V. M. A. convention at Philadelphia. He took time, however, to get married on the evening of September 9, and also to dedicate a pleasing piece of music entitled "A Morning Gallop," two-step, composed by himself, to the A. V. M. A.

Dr. Lentz is an estimable young man of considerable professional attainments. He graduated from the U. of P., 1904, and successfully passed the examinations of the state examining boards of Pennsylvania and New Jersey. He was duly licensed, in that year, to practice his profession in New Jersey as well as in his native state.

The profession appreciates the honor the young composer has conferred upon it by dedicating this appropriate piece of music to the A. V. M. A., congratulates him on his marriage and wishes him long life and much happiness.

Association of Veterinary Faculties and Examining Boards of North America.—Met at Hotel Walton, September 7th with Dr. Joseph Hughes, of Chicago, President, in the chair. Dr. Tait Butler officiated as Secretary-Treasurer.

There seemed to be only one problem before the meeting, viz., the Government investigation of the schools and the report

and recommendations of the expert committee appointed by Secretary Wilson. A heated debate arose. The work of the committee was criticised and the right or authority of the Secretary of Agriculture to classify veterinary colleges of the United States into different grades according to standards of his own creation was questioned.

On the other hand, it was considered that the committee had given us a good working basis from which to build. It was declared that the committee had accomplished more in a few short months than had been accomplished in years towards placing veterinary education on a higher plane. The work of the committee had caused colleges to build new departments, install laboratories and make additions to their faculties.

The following resolutions were finally agreed upon and adopted:

"That the action of the Secretary of Agriculture in having had made an inspection of veterinary schools is hereby approved."

"That the Association of Veterinary Faculties and Examining Boards of North America approves in general terms the report of the Committee on Veterinary Education appointed by the Secretary of Agriculture, and accepts it as a basis upon which to take united action for the elevation of the profession and as a definite starting point for unifying, improving and ultimately leading to a higher standard of veterinary education."

The association decided to divide its work into two sections, a Faculty Section and a State Board Section. These sections to hold preliminary meetings before the general meeting. The new president was instructed to appoint a chairman for each section.

The election of officers resulted as follows: President, Dr. Tait Butler; First Vice-President, Dr. M. E. Reynolds; Second Vice-President, Dr. A. H. Baker; Secretary and Treasurer, Dr. Chas. G. Lamb.

The Banquet.—This proved to be a social function of no mean order. The attendance was large, and an excellent menu was served. His Excellency, Hon. Edwin S. Stuart, Governor of the Commonwealth of Pennsylvania; C. C. Harrison, Provost of the University of Pennsylvania; Hon. N. B. Critchfield, Secretary of the State Department of Agriculture; Talcott Williams, Editor of the Philadelphia *Press,* were among the distinguished guests who occupied seats at the banquet table.

The retiring President, Dr. W. H. Dalrymple, presided as Toastmaster, in a happy and entertaining manner.

Toasts were responded to as follows:

The State—Governor Edwin S. Stuart.

The University—Provost C. C. Harrison.

National Veterinary Control Work—Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture.

The State Department of Agriculture—Hon. N. B. Critchfield.

The Press—Talcott Williams.

State Meat Hygiene Service—Dr. Leonard Pearson.

State Examining Boards—Dr. M. H. Reynolds.

Our Canadian Triumph—Dr. J. G. Rutherford, Veterinary Director-General Dominion of Canada, President-elect A. V. M. A.

The Ladies—Dr. Frederick J. Mayer.

His Excellency Governor Stuart said that "in the state of Pennsylvania we have a corps of ten meat inspectors, all qualified veterinarians, constantly engaged in the inspection of slaughter houses, animals and animal food products. This work has already shown its worth to the state to an extent that cannot be gauged by its cost."

The Governor made a plea for the conservation of the state's natural resources which are being wasted. He added that "it is upon successful agriculture that the prosperity of this country depends to a greater extent than upon any other single factor."

Further, he insisted that the animal industry in this state is a most important part of its agriculture, representing as it does an investment of $150,000,000. For this reason, and for the sake of humanity, these animals should be protected from disease and should be kept in healthy condition. Continuing, he said:

"For this protection of domestic animals and for a large part of their development the veterinary sciences have to be relied upon. Veterinary work also has an important part in public health relation. It is necessary that the sources of our foods of animal origin shall be free from infection. The veterinary profession has a great deal of responsibility in regard to the protection of the meat and milk supplies.

"In the control of tuberculosis of cattle what is known as the Pennsylvania plan has proven its value and has been advised

in other states. Altogether, we have reason to be proud of the veterinary institutions and conditions in Pennsylvania, and we are glad to exhibit them to the profession of the United States and Canada."

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The nineteenth annual meeting was called to order by the President, W. L. Baker, in the assembly room at Bagg's Hotel, at 10.30 a. m., September 2, 1908, in the City of Utica. About forty members were present at the opening session, but during the day the number was increased to at least seventy-five.

After the address of welcome by the Corporation Counsel, representing the Mayor, which was responded to by H. D. Gill, of New York City, President W. L. Baker gave his address. We will not attempt at this time to discuss any of the papers, as we feel confident that the Editors will find space to reprint them in full in the future numbers of the REVIEW. The Secretary-Treasurer's report showed 141 members in good standing and the sum of $540.64 in the treasury.

The Board of Censors reported favorably on the application for membership of W. S. Eggleston, W. L. Clarke, Geo. R. Chase, A. J. Battin, J. N. Frost, John Gordon Wills, W. J. Taylor, Thomas Sheldon, W. A. Young, W. H. Wheeler, C. H. Rowe and John Drew, and these gentlemen were duly elected.

The Committee on Resolutions, Robert W. Ellis, Harry D. Gill and Claude D. Morris, reported as follows:

"Inasmuch as Roscoe R. Bell departed this life in the zenith of his ambitions, this committee desires, in the name of this society, to record expressions of our deep appreciation of his worth to the profession in general, through his literary contributions, kindly advice and personal influence, in elevating and maintaining a high professional standard throughout the veterinary world.

"This committee recommend that a biographical record of the life of our late member, Dr. Roscoe R. Bell, be inscribed as a memoriam in the minutes of this society."

"Be it resolved that it is the sense of this society that we desire to express our feelings of respect and appreciation to

Professor James Law for the great work he has done in behalf of the veterinary profession in this country, standing out in strong relief as representing and typifying the highest ideals of the social and professional activities of life; that during his long career he has with unceasing consistency exemplified the noblest traits of man and made an endearing impression not only in the hearts of his immediate students, but also in the minds and hearts of all who have had the privilege of his acquaintance and counsel. We appreciate that in behalf of his forethought and purpose of mind we have the State Veterinary College at Cornell, and that as a lifelong instructor of veterinary medicine at that institution and recent director, not only the state of New York, but the whole country has profited through his efforts, and we also recognize that as an author and writer on veterinary medicine he has no peer in the world. On behalf of these exalted attributes of his nature your committee recommend that the society convey to Prof. James Law this expression of our respect and esteem."

"Your committee desires to present a testimonial of appreciation of the untiring efforts of Prof. Veranus A. Moore, not only in this society, but in the interest of the profession in general, in the solution of perplexing scientific problems; despite the fact that he is actively associated with no less than twelve scientific bodies, has assumed the duties of Director of the New York State Veterinary College, and continues to contribute to scientific literature. We appreciate the great demand on his time and wish to encourage him by this recognition.

"Resolved, That this testimonial of our appreciation be spread upon the minutes of this society."

"In appreciation of the appropriate generosity of one of our members in presenting to this society a memento which not only carries with it an expression of fellowship and good will, but also of historic relation, which will be a living symbol of the nineteenth annual meeting of this society, held at Utica, September 2, 1908.

"Be it resolved that the society extend to Dr. J. M. Currie their sincere thanks for this implement of beauty and usefulness, in the form of a gavel."

The Legislative Committee, W. G. Hollingworth, Chairman, reported as follows:

"I regret very much to be compelled to make a report of the nature necessary in regard to the outcome of the proposed amendment to the veterinary law which was placed in the hands of our legislators in Albany last winter. I will admit I was conceited enough to think there would not be much difficulty to be able to get the law through, but I have come to the conclusion that New York is not Pennsylvania or New Jersey as far as loyalty goes with the veterinarians. The letters I received in many cases were very unpleasantly worded. There must be a better feeling and unity among the veterinarians in this state if they wish to accomplish any legislation in regard to progression, something which is very slack in this state.

"To be loyal to the profession which we represent we must work for the cause; majority always rules, and if the majority of our profession in the state would unite, their influence would be felt among our servants at Albany. I am willing to work for anything which will in one way or another tend to help the good cause along, whether to my liking exactly or not. There is too much rivalry and selfishness among our profession.

"A man to be a worker must put his shoulder to the wheel, be on hand at the critical moment and have his presence felt. There is not a law ever drawn up which would meet the approval of everybody, so whenever a bill goes to the Legislature we must expect opposition, but if the same is in the majority and the majority can impress on the committee that they are right, or it is necessary, give and take a little, the measure will be reported. Knowing the objectional points in the bill, and also the part of the state where most of the objection came from, as chairman of this committee I think we should try again. I also fear that our society lost a very important chance to go on record in regard to special legislation during the last session. I think the time is ripe, and nothing can be accomplished without trying. It is very discouraging to the veterinarians that have the profession at heart to be confronted by such an amount of opposition when they, the opposers, know in their own mind it means another step backward to try and block the wheels of progress; but to make it unpleasant for one that they have no liking for, influence is brought to bear and a point scored for Mr. Groucher, much to his discredit.

"It is very easy to find out who the promoter is. Another thing is, that in framing an amendment it should be for the interest of the profession, not to make it unpleasant for any special one, or to get back at anyone, so to speak. Our professional ties should be closer together. Do not for personal reasons try to block necessary legislation, because you have had some unfriendly dealings with an officer of the association, just to embarrass him. That is too much like cutting your nose off to spite your face."

In addition to the very interesting and instructive papers that were read in the morning and afternoon sessions, and which we trust will find space in the future numbers of the REVIEW, we must not fail to mention the thorough discussion of the two most leading subjects at present, viz., glanders and tuberculosis, at the evening sessions. This new feature of the program, holding a banquet each evening, followed by the program, worked admirably. The first evening was devoted entirely to the subject of glanders, the second to tuberculosis. The second evening we were honored by the presence of our Commissioner of Agriculture, Raymond A. Pearson, who outlined the policy of the Department of Agriculture in regard to tuberculosis.

The election of officers resulted as follows: For President, R. W. Ellis; Vice-President, W. G. Hollingworth; Secretary and Treasurer, J. D. DeVine; Censors, George H. Berns, W. L. Williams, F. D. Holford, W. H. Phyfe, R. C. Reed.

The third day was devoted entirely to the surgical clinic. Dr. Hollingworth's spacious and well-equipped hospital made it possible to perform two or more operations at the same time during the day. Over twenty cases were operated on during the day.

President Ellis appointed the following committees:

Legislative Committee—W. G. Hollingworth, Chairman; Wm. Henry Kelly, J. M. Currie.

Committee on By-Laws—W. L. Baker, Chairman; Geo. H. Berns, W. L. Williams.

Committee on Resolutions—Harry D. Gill, Chairman; E. B. Ackerman, James Law.

Committee on Medical Jurisprudence—Claude D. Morris, Chairman; Veranus A. Moore, F. C. Grenside.

Committee on Arrangements—P. A. Fish, Chairman; G. S. Hopkins, S. H. Burnett, W. J. Taylor, J. N. Frost.

Question Box Committee—Geo. H. Berns, Chairman; W. Reid Blair, Chas. E. Clayton.

M. HAMILTON, *Secretary.*

NOTES ON THE NEW YORK STATE VETERINARY MEDICAL SOCIETY MEETING.

The nineteenth annual meeting of the New York State Veterinary Medical Society, held in Utica, September 2d, 3d and 4th, was, without doubt, the most successful, satisfactory and profitable one held in many years, if not ever.

President Baker's plans for the literary program certainly worked out to advantage, making it possible to accomplish much more in the time allotted than it has been possible to accomplish in the same length of time under previous arrangements. The master stroke in these plans was the assignment of the two great subjects, Glanders and Tuberculosis, to the two evening sessions, in the order named. On each evening a banquet was held, and the subject for consideration presented after the coffee had been served. The evening session was thereby opened, and continued, in the banquet hall.

This feature of the programme was very satisfactory; as the members were loath to leave, and were still enthusiastically discussing glanders at midnight of the first evening.

Just before Dr. Geo. H. Berns, the essayist for the evening, opened the subject of Glanders, Dr. J. M. Currie, of Rome, a member of the committee of arrangements, presented the society with a beautiful gavel which he had had made from a piece of wood taken from the corduroy road near Herkimer, that was built and used during the battle of Oriskany. The presentation was made with an historical sketch that was most interesting. The more so because of the very clear and pleasant manner in which it was delivered.

That the long evening session in the dining-room, after a day of close attendance in the assembly hall, had not dampened the ardor of the members, was evidenced by the fact that they were still discussing with animation and in the most earnest manner, the subject of tuberculosis more than an hour past midnight on the occasion of the second evening session, at which they were honored by the presence of the Commissioner of Agriculture of their state, Mr. Raymond Pearson, whose address to the members, expressing his desire for co-operation in their work, was most welcome and gratifying, and foretells the accomplishment of much good through a better understanding and closer relationship between the agriculturist and the veterinarian. A most desirable condition, when we consider that there are approximately 2,600,000 cattle in New York state.

A prominent member of the New York State Veterinary Medical Society, in a familiar comfortable position, listening to the reading of a paper, at the late meeting in Utica, when he was sketched (entirely without his knowledge) by the young lady stenographer during her leisure moments. The sketch, which Miss Zoller made hurriedly with her pencil, on the back of her note paper, was so good, that we determined to reproduce it for our readers.

The success in carrying out the literary program was augmented very materially by the local committee of arrangements, whose genial chairman, Dr. Walter G. Hollingworth, aside from his great executive ability, has the happy faculty of making every one feel at home; and his good nature is positively contagious.

The assembly hall had taken on a cheery look by the touch of his hand, and was decorated with our country's flag. The members seemed unwilling to absent themselves from the sessions for a moment in search of recreation, as has been frequently observed on other occasions, but remained in close attendance, earnestly discussing the matters that were presented to them by the essayists. Another very important factor in the success of the Utica meeting was the large attendance. Out of a membership of about one hundred and forty, seventy-five were present—practically every county in the state being represented.

Twelve new members were admitted during the convention, and the society is in a sound condition financially.

The third day was exclusively devoted to clinical work, which began at 8.30 a. m. at Dr. Hollingworth's modern and spacious hospital, the splendid appointments of which were a revelation. Clinical material was in abundance, more than 20 horses having been presented for surgical operations and diagnosis of their ailments before the clinic day had been reached. Among the important operations was a "second operation" in a roarer by Prof. W. L. Williams, of the State College, at Ithaca, the subject being a sorrel mare which had been operated upon for roaring a year previous, and had at this time an ossification of the thyroid cartilage.

An operation on a cryptorchid yearling was next performed by Dr. J. F. De Vine, of Goshen, N. Y. The right testicle, which was down, was removed standing, the colt then being thrown for the removal of the second organ.

Dr. P. J. Axtell, of Binghamton, N. Y., then performed plantar neurectomy, standing.

Prof. Williams operated for roaring due to paralysis of the left vocal cord, on Geldine, a trotting stallion, who had raced with a tube in his trachea. This operation was performed under general anæsthesia.

Dr. De Vine operated on a case of scirrhous cord in an aged gelding.

A case of arthritis of the atlo-axoid articulation in a roan gelding was operated on by Dr. Axtell, under general anæsthesia, on the operating table. Dr. J. M. Currie, of Rome, N. Y., presented an exaggerated case of exuberant granulation on the off hind leg, for examination.

Dr. R. N. Gordon Darby, of Fort Plain, N. Y., operated for scirrhous cord, on a black gelding, assisted by Dr. L. G. Moore, of Trenton, N. Y.

A case was presented for diagnosis to Dr. F. C. Grenside, of New York, N. Y. A chestnut gelding that had run away some time previous, presented as a result of injuries received at that time, lameness in the off fore, and atrophy of the anterior and posterior spinatus muscles of the off fore scapula.

Another clinical case in which advice was sought was presented to Dr. Geo. H. Berns, of Brooklyn, N. Y., with a pronounced spavin that had been fired and blistered several times without satisfactory results. Double torsal-neurectomy was recommended by Dr. Berns, to be performed later in the day.

A most interesting case for diagnosis had been driven in from eighteen miles out in the country two days previous and was turned over to that careful and painstaking diagnostician, Dr. Berns. The case proved so unusual that Dr. Berns called in consultation Drs. Grenside and Williams. The subject, a slightly built young bay mare, impressed one at first as a case of rabies, as she would, while peacefully picking hay from the floor, suddenly reach for her forearm and bite at it violently, and would reach for the other arm at the same time with the hind foot of the opposite side. These contortions would last but a few minutes, during which time she would nearly fall down, when they would subside and she would be quiet again, as before. These "spells" would come on about every fifteen to twenty minutes—seldom at longer than half-hour intervals; and, according to the owner's statement, this condition had existed for two and one-half years. She sometimes fell when the "spell" was extra bad, which frequently was the case in harness—as the owner drove her regularly despite this condition, which he said he could usually dissipate by "hitting her with the whip." She had a "spell" which he tried to dissipate in that manner when driving her away from the clinic, which resulted in her going down and mixing up into a terrible tangle.

Drs. Berns and Grenside gave the following extemporaneous "field" diagnosis: Dr. Berns said: "This is a peripheral irrita-

tion of the sensory nerves, over a circumscribed portion of the body, best marked in front of the inside left fore-arm and immediately behind the right elbow. Probably due to the same obscure condition of the nervous system which causes involuntary shaking of the head."

Dr. Grenside, who at this time did not know Dr. Berns's diagnosis, said: "It is pruritis, of nervous origin." Dr. Williams did not give an opinion.

An adjournment for luncheon was taken at noon-day, when a sumptuous spread was served in another part of the hospital, where long tables had been plentifully supplied with many good things to gratify the inner craving of the operators and their ladies. The presence of the horse ambulance and other appliances in the dining-hall in no way detracted from the pleasure of lunching.

The repast over, the clinic was resumed and continued until 6.30 p. m., during which time many valuable points were demonstrated in surgery, in which Drs. Williams, Baker, Ide, Axtell and others took part. Drs. Baker and Axtell each performed tarsal neurectomy; Dr. Axtell also performed peroneal tenotomy for relief of stringhalt, and Dr. Baker, the retiring president of the society, demonstrated puncturing the stomach by passing the trocar into it at a point just posterior to the xiphoid appendage of the sternum. The doctor first pumped the subject's stomach full of air through a stomach tube.

Dr. Currie demonstrated various methods of destroying large animals painlessly and rapidly. The clinic and 19th annual meeting were thus brought to a close, each one present expressing entire satisfaction at the wonderful accomplishments of Dr. Hollingworth in getting so much good material together and at the splendid facilities he had for handling it.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The twenty-sixth semi-annual meeting called to order 10 a. m., July 15, 1908. Minutes of last meeting read and approved. Applications for membership read and each elected to membership as follows: Drs. W. S. Tomlinson, Galesburg; G. J. Graem, Elmwood; W. G. Neilson, Monmouth; W. J. Morgan, Seaton;

Oscar A. Sego, Springfield; Wilbur C. Doss, Lewiston; J. L. Montooth, Neaponset; J. C. Brown, Joy; W. W. Warnock, Aledo; L. B. Michael, Collinsville; Jno. Harrison Wolaver, Assumption; R. D. Denton, Carthage; H. L. Wickwire, Ipava; Albert R. Cowser, Glasford; E. K. Kane, Warren; A. M. Mair, Streater; W. H. Stephenson, Stockton; H. C. Barth, Amboy; Geo. B. McKillip, Chicago; A. C. Spurling, West McHenry.

The following communications were then read:

MACOMB, ILL., July 7, 1908.

Dr. STRINGER,

Paxton, Ill.:

KIND FRIEND—I received your invitation to Dr. Cale to the meeting of the Illinois Veterinary Medical Association. Dr. Cale wanted that I should write and inform you that he could not attend, as he is in the St. Francis Hospital, where he has undergone two severe surgical operations for rupture and appendicitis. He was sorry, especially as the meeting is so close.

Respectfully yours,

Mrs. HARRY B. CALE.

Dr. Martin moved that the Secretary send a letter of sympathy to Dr. Cale, and it is the wish of this association that he may hasten to a speedy recovery. Carried unanimously.

A communication was then read from the President of the A. V. M. A., Dr. Dalrymple, requesting that this association send a delegate to the meeting of the A. V. M. A., to be held at Philadelphia, Pa., September 8-12, he stating that "The association will be pleased to grant the privilege of the floor in debate to delegates."

Moved by Dr. Martin that the President appoint a delegate to the A. V. M. A. carried. Dr. L. C. Tiffany, of Springfield, was appointed by Dr. Mills as delegate.

A communication was read from the manager of the Palmer House, Chicago, inviting this association to hold its annual meeting at the Palmer House. Reasonable rates were offered and a convention room would be furnished free of charge.

The communication was referred to the Committee of Arrangements. Next in order was the reading and discussion of papers. Paper by Dr. G. C. Eckley, Monmouth, "The Benefits of Local Associations." This was a very able paper, and was very interesting from the fact that it did prove that the local association was of much benefit to the veterinarians in that part of the State.

Several took part in the discussion and all present seemed to agree with the doctor that the local associations were of much benefit and protection. Dr. Martin states that this is an age of consolidation and amalgamation, and that it was his intention to make an effort to create a local organization in his territory. Dr. Geo. Eckley reported that a quack that was practicing in that vicinity without a license left instanter when he heard that there was a summons issued for his arrest. Dr. Hanawalt reported one quack at Yates City that quit after being placed in jail five days.

Paper by Dr. T. J. Gunning, Peoria, "One of the Lame Points of the Veterinary Profession." The doctor criticized the veterinary colleges in a mild way for not giving more instruction upon the diseases of the eye; that he had taken a special course in an eye, ear, nose and throat college and he has found that he has been well repaid for his effort. He states that in many cases of diseased eyes in a horse where the veterinarian had failed to effect a cure, that cures could have been effected had he had the proper knowledge of such diseases and treatment.

The paper was discussed by several of the members. The most interesting part of the discussion was that upon periodic ophthalmia. The doctor believes it to be a germ disease, and begins in the conjunctiva and extends from that over the eye. Dr. Tiffany thinks it very similar to glaucoma in the human. Discussion closed.

Dr. Hanawalt, of Galesburg. Paper, "Eclampsia." This subject has been before the association at several previous meetings and still continues to be a subject of much interest. Like azoturia, its pathology is not very well understood. Some veterinarians report very satisfactory results treating this trouble with bromides and nerve sedatives, such as potassium bromide, gelsemium, viburnum prunifolium and asafœdita. Dr. Hanawalt reported a case with very marked symptoms of eclampsia in a gelding. This seemed just a little bit funny, for the disease had always been considered one wholly peculiar to females. Dr. Brownlee recommends bromides internally and ice packs to the head.

Adjourned for lunch at the Union Hotel. The menu was very elaborate and a very pleasant social hour was spent.

Meeting reconvened at 1.30 p. m.

Dr. A. H. Baker gave a very interesting talk on a case of sarcoma. The horse having periodic symptoms of colic over a

period from the 1st of April to the middle of June. The doctor's description of the pathology of sarcoma was very instructive and was much appreciated.

The next in order was the report of the Legislative Committee by Dr. Martin. He stated that nothing of importance had come before said committee during the past six months.

The resolutions upon the death of Dr. Bell that had been sent to the REVIEW, and published in the April number, and also to family of Dr. Bell some time previous to this meeting, as drafted by Dr. Mills and signed by Drs. Mills, Glendenning and Stringer, were read and approved by a unanimous vote. Mrs. Dr. Bell had replied to the receipt of same, thanking the association for its kind sympathy and high esteem that it held for Dr. Bell.

The following resolution was read and adopted unanimously:

Whereas, We acknowledge our indebtedness to Governor Charles S. Deneen for his favorable attitude toward the veterinary profession within our state for a more liberal education in the science of veterinary medicine and surgery, the result of which is already apparent in the demand for a higher standard of excellence in our profession, we offer our professional and personal support to the advancements thus inaugurated and commend to every veterinarian the need of careful and earnest cooperation to insure the success of these improved conditions to the betterment of the great live stock interests of the State of Illinois; be it

Resolved by the Illinois State Veterinary Medical Association in semi-annual convention assembled, that we appreciate the wise, patriotic and progressive administration of Governor Charles S. Deneen. Particularly do we commend the conduct of affairs under his direction in that branch of the state government in which we, as veterinarians, are interested, viz., the eradication and control of contagious and infectious diseases among domestic animals. The important changes brought about by him in the department of live stock inspection, which were favorably commented upon by this body a year ago, have found their fruition in a distinct advance in the cause of live stock sanitation, and a more active and aggressive movement for the prevention and extermination of diseases among domestic animals.

The following question to the association was read: Hon. George Prince has lost several pigs from an ulcerative sore mouth and throat, and wishes to ask the association what it is and its

cure. Dr. L. A. Merrillat stated that the disease was somewhat prevalent and was known in Germany as Schneifelkrankheit, commonly known in this country as contagious ulcerative sore mouth in pigs. The disease extends over the nose and sometimes over the head. Thorough disinfection by the use of coal tar dips disinfecting the premises, or better still, keeping healthy animals away from infected ones and infected premises.

Dr. James Wright, State Veterinarian, requested that a representative veterinarian from each county in the state be appointed to ascertain the number of animals slaughtered in his respective county and the number of slaughter houses, and report the same to the Chairman of the Advisory Board, Dr. Joseph Hughes, Chicago. He stated that this report would be of much value to the veterinarians in this state.

The question regarding the licensing of non-graduates was brought up and thoroughly discussed. The discussion was somewhat animated, but it brought out the fact that our State Board of Examiners were using every precaution to protect the veterinary profession and that our state law is a good one and is sufficient to protect the profession where honest state attorneys are appealed to.

At the close of the meeting Dr. W. C. Hanawalt presented an interesting case for examination. It was a horse having a soft fluctuating tumor on the inside of the foreleg at the head of the radius. It appeared to be a serous cyst, but Dr. Hanawalt stated that the aspirator proved it to be a varicose vein.

Our mid-summer meetings are proving to be a success, and are growing better each year.

Meeting adjourned to meet in annual session at Chicago, December 1-2.

N. I. Stringer, *Secretary.*

YORK COUNTY (PA.) VETERINARY MEDICAL SOCIETY.

A goodly number of the members attended the quarterly meeting of the society held in the parlors of the National Hotel, York, Pa., September 1. Representatives from all sections of the county were in attendance and shared in the discussions.

The most interesting questions brought before the society were the discussions of "the Meat-Hygiene, the work of the State Live Stock Sanitary Board and what they are doing for the public at large," delivered by Dr. G. M. Graybill, of East Petersburg, Pa.

Dr. Graybill attended the meeting by special invitation, and his address was heartily received by the York County surgeons. At the conclusion of his address, Dr. Graybill was given a rising vote of thanks.

"Tuberculin, Its Experiments, and Its Reactions," together with "The Treatment of Simple and Compound Fractures of the Limbs of Domesticated Animals," were discussed by those present. The next meeting will be held Tuesday afternoon, December 1, 1908.

E. S. BAUSTICKER, *Secretary.*

THE address of Dr. Burt J. Eno, Ironton, Ohio, is now Philippine Islands, care of the Governor-General. Dr. Eno, who has been appointed to the Philippine service, sailed Sept. 25 for his post of duty.

A GOLD cuff button was found after the clinic of the N. Y. S. V. M. S., at Dr. Hollingworth's Hospital, at Utica. If the owner will communicate with Dr. Hollingworth, 54 Lafayette street, Utica, N. Y., he will be glad to return the same.

THE city of Greenville, S. C., has appointed Dr. Clarence E. Smith, of Newbern, N. C. (K.C.V.C.), to the position of meat, milk and food inspector. Greenville is the first city in the state of South Carolina to appoint a graduate veterinarian to the position of meat and milk inspector. We congratulate the city of Greenville and we congratulate Dr. Smith.

"THE Need of State and Municipal Meat Inspection as a Supplement to Federal Inspection" was the subject of an able paper by Dr. A. M. Farrington, Assistant Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, presented at the twelfth annual convention of the Association of State and National Food and Dairy Departments, at Mackinac Island, Mich., Aug. 4-7, 1908. He particularly recommended a system of central slaughter houses for smaller cities and towns. Germany has more than 600 of these.

NEWS AND ITEMS.

Society was out in full force at the Newport Horse Show, September 7-9.

Dr. Ralph W. Balkam, Sarles, N. D., has leased the veterinary hospital formerly conducted by Dr. Switzer, in Springfield, Mass.

Professor Robert W. Ellis, D.V.S., was obliged to decline a cordial invitation to attend the banquet of the Alpha Psi Fraternity held at Chicago on the evening of September 4.

Dr. C. L. Barnes, of the Veterinary Department of the Colorado Agricultural College, acted as official veterinarian at the Northern Colorado State fair the fore part of September.

Dr. W. H. Lynch, Portland, Me., en route to the International Congress on Tuberculosis, Washington, D. C., made a pleasant visit to relatives at Mount Vernon and Lynchburg, Va.

Ex-Presidents Robertson, Williams, Hoskins, Pearson, Butler, Winchester, Stewart and Lowe were in attendance at the forty-fifth annual meeting of the A. V. M. A. at Philadelphia.

Dr. Harry C. Millar has been a member of the Board of Health of Asbury Park, N. J., for the past four years, and Dr. Thomas Bland, Waterbury, Conn., serves his city as Health Commissioner.

The entertainment provided for the ladies at the A. V. M. A. meeting was a continuous performance. Luncheons, reception, banquet, automobiling, theatre-going, boat-sailing, sight-seeing and shopping are only some of the features of the entertainment afforded. The social features were all that could be desired.

Dr. W. G. Hollingworth, Utica, N. Y., on his return home from the International Congress on Tuberculosis, found his appointment as official veterinarian of his city awaiting him.

Dr. Hollingworth is chairman of the Oneida County Education Committee of the New York State Charities Aid Society for the prevention of human tuberculosis. The right man in the right place.

Dr. A. R. Ward, Professor of Veterinary Science and Bacteriology in the University of California and Director of the State Hygienic Laboratory, is spending a year's leave of absence at eastern institutions doing research work in bacteriology and writing his book relating to the pure milk problem. He attended the A. V. M. A. meeting at Philadelphia and the International Congress on Tuberculosis at Washington.

It is still President Dalrymple. At the meeting of the Interstate Association of Live Stock Sanitary Boards, held at Washington, D. C., the week following the A. V. M. A. convention at Philadelphia, Dr. W. H. Dalrymple was elected president of that organization. Dr. S. B. Nelson, Pullman, Wash., was chosen vice-president, and Dr. C. E. Cotton, Minneapolis, Minn., secretary-treasurer.

Secretary Lyman Returns to Kansas City.—On September 17, Dr. Richard P. Lyman, Secretary of the American Veterinary Medical Association, left Hartford for Kansas City to resume his chair—the Practice of Medicine and Obstetrics—in the Kansas City Veterinary College. He will also teach first year surgery. All communications, hereafter, for Dr. Lyman should be addressed to him at Kansas City, Mo., in care of the Kansas City Veterinary College.

Dr. Theodore F. Krey, who lectured last year at the New York-American Veterinary College, in place of the late Dr. Roscoe R. Bell, Professor of Materia Medica and Therapeutics, during the latter's illness and subsequent to his death, has moved to Detroit, having accepted the position of head of the Department of Experimental Medicine (Veterinary), Parke, Davis & Co. Dr. H. D. Hanson, as announced in the September Review, has been appointed Professor of Materia Medica and Therapeutics in the New York institution.

Marriage of Dr. C. M. Haring.—It will interest many readers of the Review to learn of the marriage, at Berkeley, Cal., on August 22, of Dr. C. M. Haring (N. Y. S. V. C., '04) to Miss Grace Moody (Univ. of Cal., class of '05), a successful

High School teacher. Dr. F. H. McNair (N. Y. S. V. C., '05) acted as best man at a prettily appointed evening wedding. Dr. Haring was recently made Assistant Professor of Veterinary Science in the University of California, an acknowledgment of his splendid work for the live stock interests of the state. Dr. Haring was a delegate to the meeting of the A. V. M. A. at Philadelphia and the Tuberculosis Congress at Washington, D.C. He and his bride will visit Boston, New York, Philadelphia, Washington, Ithaca and other places before returning to California. Drs. A. R. Ward and Haring have for nearly two years been carrying on a series of tests for the attempted artificial immunization of calves against tuberculosis. The results of their tests will be published in the near future.

Western Canadian Notes.

R. A. McLoughry, V. S., reports a few trials with Yohimbin (Spiegel), a new sexual tonic and stimulant and states that good results were obtained with sluggish stallions.

Dr. Patton, Coutts, Alta., who has been seriously ill at the Medicine Hat Hospital, his illness necessitating surgical interference, is recovering slowly.

The *Globe*, Toronto, reports the marriage of Madeline Hamilton Dwar, of Paris, Ont., at Lethbridge, Alta., Sept. 5, 1908, to Dr. W. T. Patton, Coutts, Alta.

An epidemic of matrimony has struck the Saskatchewan Inspectors of the Health of Animals Branch, Dr. J. C. McMurtry succumbing in August, Dr. N. P. Olsen in September, prognosis in both cases favorable.

All Canadian veterinarians rejoice in the election of Dr. J. G. Rutherford to the presidency of the American Veterinary Medical Association. Honor has been done to the recipient, the association and to Canada. No one man has done more for the veterinary profession in British North America than Dr. Rutherford. He was responsible for the placing of a model act regarding the profession on the statute books of Manitoba; he created and organized the Health of Animals Branch and later the Canadian meat inspection service, and was the power behind the throne in raising the standard of veterinary education in Canada incidentally by the reorganization of the Ontario Veterinary College on a three-year course basis under the aegis of the University of Toronto.

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AMERICAN VETERINARY REVIEW.

NOVEMBER, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, September 15, 1908.

VETERINARY NOTES—A CORRECTION.—The "Veterinary Notes" (No. 4) of Parke, Davis & Co., have arrived, with the likeness of Wm. Herbert Lowe, D.V.S., President American Veterinary Medical Association (1905-6), on the outside cover page.

It is the continuation of the series of Presidents of the A. V. M. A., inaugurated by the Editor of "Veterinary Notes."

I have read the biography of the Ex-President of our national association, and may be allowed to correct some parts of it, incorrectly stated by "Veterinary Notes."

It is said that "Dr. Lowe is now, and has been for several "months, the Managing Editor of the AMERICAN VETERINARY "REVIEW. He had for many years been a member of the staff "of editorial collaborators, and the late Dr. Roscoe R. Bell, "realizing early in the present year that he was soon to pass "away, called in Dr. Lowe and asked him to assume the task of "directing the editorial work of the journal, as the associate of "Dr. A. Liautard, of Paris, who still continues his position as "Editor-in-Chief."

The corrections are to the effect that Dr. Lowe is *not* managing editor of the AMERICAN VETERINARY REVIEW. This important post is occupied by Dr. R. W. Ellis. When Dr. Bell's health began to fail rapidly in November last, Dr. Lowe was requested to contribute to the editorial work of the REVIEW, and in January, 1908, was made Associate Editor to Drs. Liautard, Bell and Ellis. On the death of Dr. Bell in the early part of the

month following, the direction of the editorial work of the journal passed into the hands of Dr. Ellis (the then only remaining editor in America), with the approval of the Chief Editor, Prof. Liautard. Dr. Lowe was continued on the staff as associate to Drs. Liautard and Ellis, which position he has creditably filled and still occupies. All material for publication, as well as all business communications, should *continue* to be addressed to the AMERICAN VETERINARY REVIEW, 509 West One Hundred and Fifty-second street, New York, N. Y.

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BIBLIOGRAPHY: THE HISTORY OF THE SCHOOL OF ALFORT. —A so far unique addition has just been made to the literature of the veterinary profession of the whole world.

Prof. Railliet, of Alfort, and Mr. Moule have completed the enormous task that they undertook, and to-day the *History of the School of Alfort* is published and will, in a short time, be found in the library, not only of every Alforian veterinarian, but in that of every veterinary institution, whether in the old or in the new world.

It is indeed an enormous labor, almost a work of giants, that these gentlemen have accomplished, which has demanded several years of long and patient researches among the many documents that were put at their disposition in the national archives, those of the schools, and with the books, pamphlets and professional journals where information of more or less value could be found.

And these investigations were necessary, for if already previous attempts had been made, attempts which on many occasions were not very exact, the well-known reputation of the two authors of the new work imposed upon them that every effort should be exerted so as to do justice to the subject and show to their readers at large the well due homage belonging to their undertaking and to their alma mater, which is that also of so many generations of veterinarians, that of the many who have figured in the work of spreading veterinary science, and of those who from Alfort have given to many schools of the different

parts of the world the benefit of their Alforian education, among which I extract from the book the schools of Padua, Dresden, Vienna, Hanover, Turin, Carlsruhe, Munich, Berlin, Milan, London, Madrid, Naples, Abouzabel in Egypt, La Plata, Lisbonne, Bruxelles, Constantinople, Bucharest, New York, Philadelphia, etc., etc.

The work, which covers over 800 pages, is handsomely illustrated by 92 plates, among which are those of Bourgelat, Bertin, Chabert, Vicq d'Azir, etc., etc., from the first days of the creation of the school to modern times, and the manner in which the whole work has been done and is offered shows how well the House of Asselin & Houzeau appreciated the superiority of the new publication, which is arranged as follows:

First, a preface, where the authors state that "although the school is nearly one century and a half old, no one has yet attempted to describe the various stages of its development." There was a want which had to be filled and they have attempted to do it as a respectful homage to their alma mater and also to show the relative importance that belongs to the school in relation with the development and progress of the veterinary profession. The "History of the School of Alfort" is divided in four parts. In the first are three chapters: (1) Veterinary medicine before the foundation of the schools; (2) The first veterinary schools, Lyon, Limoges; (3) The School of Paris: Temporary installation. Transfer to Alfort.

The second part treats of the evolution at Alfort, and is, from 1766 to 1903, divided into nine periods. There the authors consider the theoretical and practical teaching of the school, treat of what related to the students, to the curriculum, to the professional societies, etc., and recall the memory of the victims of their professional duties.

The third part treats of the financial questions, and the fourth of the various buildings and materials.

It is not possible in this short notice to mention all the points of importance and value that can be found in this new book. Historical facts, anecdotes that have taken place in those many

years, faults and errors that have been committed, most valuable advice for other similar institutions, etc., etc., all can be found in MM. Railliet and Moule's last publication.

They certainly deserve much credit, and the veterinary profession the world over must feel indebted to them for the work they have so conscientiously and successfully accomplished.

* * *

Imperial Institute of Experimental Medicine at St. Petersburg.—Among the material accumulated on my desk during my vacation, I found numbers 4 and 5 of the Imperial Institute of Experimental Medicine at St. Petersburg. They complete the thirteenth volume, and in them I saw the Comptes rendus of the scientific works carried out at the institute during the year 1906. Their number and value are of great importance.

To give an idea of the work done in that institution, let us give a glance to the peculiar subdivision of the departments where the scientific researches are carried out and look at the number of assistants or workers each department occupies besides the principal director and his special assistants, who are quite numerous. There are altogether twelve sections or services:

1. Section of Physiology, which, besides the staff, has fifteen investigators. Among the work that has been carried out in that laboratory, it is stated that 5,978 vials of gastric juice have been prepared and delivered.

2. Section of Pathological Anatomy, with eleven co-workers.

3. That of Biological Chemistry, with twenty-three workers.

4. That of General Microbiology, with four assistants.

5. That of Epizootology, where, with the staff and twelve other assistants, works on glanders, tuberculosis and trypanosomes receive special attention. In this laboratory there have been prepared and delivered 25,883 vials of mallein, 12,975 of tuberculin, and 641 of antidysenteric serum.

6. The Laboratory of General Pathology has, besides its staff, ten workers.

7. The Practical Service for the Preventive Treatment of Rabies has a large staff and only four outside workers.

8. The Pathologo-Bacteriologic Laboratory counts thirty-eight co-operators.

9. The Service of Public Hygiene.

10. The Pathological Laboratory.

11. The special laboratory for the preparation of products against pest; and finally

12. The Service of Disinfections.

Each of these have published a large number of reports and papers relating to their special work, all of great value. They constitute important evidences of the immense amount of work carried on by the institute. In previous issues of the REVIEW, I have made our readers acquainted with notices of some of them.

In the last numbers that I have received there are contributions of great interest to veterinarians, upon which I will have occasion to refer later on. Certainly, the contributions of Dr. W. W. Podwyssotzki on the "Alterations of the Sub-maxillary Gland in Rabies," that of Aimée Hortwitz, Study of the bacterian flora of the stomach and small intestines of dogs, are deserving of more than this general notice.

* * *

PLANTAR TENOTOMY.—Is plantar tenotomy as taught in our classical works to be reserved for desperate cases? Is it, as claimed by some, more injurious than the disease against which it is performed, and, on these accounts, is it losing its popularity to see that of the perforatus tendon alone be the indication in incurable sprains of the tendinous apparatus of the canon, incurable affections which so often give rise to frequent return of lameness and end generally in rendering an animal useless?

Such is the object of a communication that I have found in the June and July issues of the *Recueil de Medecine Veterinaire,* written by an army veterinarian, Mr. A. Querreau.

For fifteen years he has experimented with this mode of treatment, and, as the results of his experiments, he has come to

the conclusions that the advantages that the tenotomy of the perforatus presents are such that it is certainly the most radical and most economical treatment to resort to in cases of recidiving or incurable sprains of the tendons, of the radial reinforcing band, of the suspensory ligament, and even in the relief of some incurable lameness due to traumatic synovitis of the great sesamoid sheath. Indeed, this operation gives, until the cicatrization is organized and is complete, radical rest to the perforatus, to the radial band, to its ring, and to its insertion upon the second phalanx. It differs from the classical tenotomy by removing entirely a function (that of the flexion of the phalanges), and simply relieves a secondary action, that of the perforatus. When this is divided, flexion of the phalanges upon each other remains integrally insured by their principal flexor or the perforans. And, besides, it places the weak tendon (perforatus) under the influence of the strong (perforans). Indeed, the former is the weakest as long as it is liable to snap in its entire length, from its radial band to its insertion upon the second phalanx. Finally, perforatus tenotomy is justified by the general principle so often applied in surgery, namely, that it is better to remove an incurable organ than to preserve it when its condition of disease and pain may compromise the functions of surrounding organs that have remained healthy.

* * *

Mr. Querreau performs tenotomy of the perforatus in two different manners, according to cases: (1) Subcutaneously and according to the classical manner, when its objects are to remedy lesions of the radial band, of the ring, or of the great sesamoid synovial. (2) On the contrary, it must be performed open, when it is to relieve lesions of the body of the perforatus, accompanied with induration of the tendon. In describing the various stages of the operation and the specific cares in the dressing, Mr. Querreau insists upon the necessity of packing well the cavity and the surface of the wound with pads of iodoformed gauze before the closing of the wound with sutures. The use of a shoe with a

long toe is also recommended to avoid knuckling. There is always a large callous following the operation, but this is almost completely resorbed after a few months.

A great number of observed cases are recorded of the successes obtained with this tenotomy against sprains of the radial band (15 cases and 13 perfect successes), against sprains of the perforatus in its metacarpal portion (6 cases with 6 successes), against incurable lesions of the great sesamoid sheath (2 cases, with one success and one failure).

To resume: The efficacy of perforatus tenotomy is shown clearly by the above considerations. The greatest objection is the possibility of leaving a permanent more or less disfiguring nodule on the length of the tendon, nodosity which is no more unsightly than that left by the retracted and indurated tendon before operation and which cannot be more objectionable than the ugly cicatrix which is left by other forms of treatment such as blistering, firing, etc.

With this single objection, there cannot be a doubt that this operation is bound to become the favorite means of treatment for injuries of that kind.

* * *

Eleventh Annual Meeting of Interstate Association of Live Stock Sanitary Boards.—It was quite a surprise to me to find in my desk lately the report of the eleventh annual meeting of the Interstate Association of Live Stock Sanitary Boards. I acknowledge with regret that this was the first information, as far as I recollect, of the existence of such an organization; and the perusal of the comptes rendus made me feel that, personally, I had sustained a great loss by not having known of it before, of its meetings and of its work. I have no doubt that some of my readers will feel as I did.

The eleventh annual meeting was held in the parlors of the Murphy Hotel, in Richmond, Virginia, on September 16 and 17, 1907, more than one year ago. I cannot give a detailed examination of the subjects that were treated, and yet in reading

the titles of the papers that were presented and discussed, one may judge how interesting the meeting must have been:

"State Control of Hog Cholera," by Dr. J. H. McNeil, of Iowa; "Tick Eradication," by Dr. Tait Butler; "Federal Inspection of Meat," by Dr. A. D. Melvin; "Purchase of Cows for Slaughter Subject to Post-mortem Inspection," by Dr. I. E. Dyson; "Relation of State Veterinarians and Live Stock Sanitary Boards to the Public Health," by Dr. C. G. Lamb; "Rabies and Its Control," by Dr. Austin Peters; "Animal Parasites," by Dr. J. G. Ferneyhough.

The meeting lasted two days and important resolutions were taken:

On the subject of "Federal Meat Inspection," "that the different states should organize and put in operation a system of meat inspection."

On the subject of "Eradication of the Fever Tick," "that the appropriation made by Congress for this work be increased to $500,000."

On the subject of "Hog Cholera and Tuberculosis," "that the attention of the sanitary authorities of each state and national government be called to the fact that these diseases are assuming such importance that their eradication can only be accomplished by the combined and concerted action of all sanitary authorities and that such steps should be taken to insure perfect combination of such authorities, to the end that these diseases may eventually be wiped out."

On the subject of "Milk Inspection," "the association urged upon all state authorities and the public generally the absolute necessity of state supervision of the milk supply, and that all states pass laws requiring the testing of all dairy cows with tuberculin."

The comptes rendus concludes with reports of the sanitary condition of some states, for instance, in Arkansas by Dr. W. Linton, in Colorado by Dr. C. G. Lamb, in Illinois by Dr. J. W. Wright, in Maryland by Dr. G. Allen Jarman, in Missouri by

Dr. D. F. Luckey, in Minnesota by Dr. M. S. Whitcomb, and in Virginia by Dr. J. C. Ferneyhough.

No doubt that by this time the twelfth annual meeting of this working association has taken place and that at an early date I may be fortunate enough to glance at their next report. The profession at large, I am sure, would like to hear from it.

* * *

Hippophagy.—Hippophagy is no longer a special subject of curiosity. It has entered into the customs and habits of people, although in some countries it has spread more extensively than in others. Anyhow, its origin is old. Already, in olden times, horses were certainly killed and used for human food. According to Julius Caesar, Gallics were especially fond of horse meat; and, according to Pliny, young donkeys were especially fattened for the table of patricians. But it must be acknowledged that there is a great difference between the use that was made of horse meat in olden times and that of to-day. As it is certainly less on account of palatable taste, than to palliate against the difficulties for obtaining meat for use that horseflesh is resorted to. And yet there is an important opening offered for this use. For some time, physicians, at least in France, have become great propagators of the use of horse meat. In prescribing to their patients the continued ingestion of raw horseflesh, in preference to that of beef which is higher in price, they have incited poor, and even people in better social situation, to obtain from the muscles of healthy horses a better supply of energy for their failing strength.

Hippophagy has been the object of many writings. Physicians, veterinarians and sanitarians have all published articles upon it. Laws, sanitary regulations, slaughter-houses, and shops have been established, and the number of solipeds that have been delivered for public consumption has, since 1866, when it was officially recognized in France, been constantly increasing. In Paris, between 1866 and 1869, the number scarcely reached 3,000; in 1906 there were nearly 60,000. In Germany, during 1906, nearly 150,000 solipeds were slaughtered and sent to market.

In Belgium, says the chief editor of the *Gazette du Village,* the number of horses slaughtered, in proportion to the extent of its territory, is even larger than in France. Therefore, the development of hippophagy is slowly progressing in all countries, except in England, where no shops exist where horse meat is sold.

In a recent communication on the subject of hippophagy, I read the following taken from the comptes rendus of the meeting of the Congres Hippique:

"But certainly it is America which leads in this special in-
"dustry (that of horse meat supplied as food). There, horses
"are raised especially for this purpose. They are typical horses,
"not too big, but having an excellent meat.

"When hippophagic shops made their appearance in America,
"the butchers that sold bovine meat protested and made vigor-
"ous objections and all possible efforts to stop them. But Car-
"negie became interested in the question; he gave the new in-
"dustry its aid, and to-day, in the suburbs of Chicago, there exist
"special factories where horse meat is prepared in all manners.
"It is made in preserves, it is made in sausages, it is salted and
"frozen."

"These factories do not export their products."

I do not know how far those statements are correct and I cannot help thinking that the writer has committed a grave error, as an examination of the twenty-third annual report of the Bureau of Animal Industry shows that between 1891 and 1903. no horses had been inspected at abattoirs for slaughter, except in the years from 1899 to 1903, when about 3,000 were inspected, in 1899, a little over 5,000 in 1900, to drop below 2,000 in 1901 and 1902, and finally died out in 1903 with 344 inspections.

At any rate, if there are horse meat shops in the United States, I must acknowledge that I do not know it.

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In the July issue of the REVIEW there was a list of the gentlemen that Prof. Leonard Pearson had invited to serve as mem-

bers of the National Committee for the United States at the ninth International Veterinary Congress.

In Circular No. 2, just issued by the Executive Committee at The Hague, this list has been published, among those of other countries, and a glance at them shows that indeed these national committees will be representatives from Holland, of course, and then from North and South Africa, Austria, Belgium, Bulgaria, Denmark, England, France, Germany, Hungaria, Italy, Norway, Roumania, Russia, Servia, Spain, Sweden and Switzerland. Our American friends can be assured that they will be in good company.

The circular gives also the following program of the work of the Congress:

A.—The Congress will open on September 13 *and close on September* 18, 1909.

N. B.—The names of the reporters will be published afterward.

B.—Official opening meeting, September 13*th, at* 2 *o'clock p. m.*

C.—General meetings: September 14, 15, 16, 17, 18, *at* 9 *o'clock a. m., September* 14, *at* 2.30 *o'clock p. m.*

SUBJECTS.

1. Government efforts against swine plague and hog cholera (swine fever) based upon the recent researches regarding their etiology, vaccination, sero-vaccination, etc.

2. The protection of the practice of veterinary medicine.

3. The rôle of the veterinarian as expert in zootechnical questions.

4. The conditions necessary to obtain the doctorate in veterinary science.

5. The sanitary control of milk and the obligatory systematic inspection of meat.

6. The methods employed in removing the carcases and meat, with the object of rendering them harmless.

7. The prophylaxis and pathology of protozoan diseases (piroplasmoses, trypanosomoses) with demonstration of the

specific parasites and of the transmitting animals (ticks, mosquitoes, etc.).

8. The governmental control of sera and bacterial products and their preparation by the government.

9. Avian tuberculosis in its relation to tuberculosis in mammalia.

10. The sterility of cows and its dependence upon the infectious diseases of the genital organs.

11. Governmental efforts against tuberculosis, with regard to the ways of infection in this disease.

12. Construction and interior of stables in relation to the prophylaxis of diseases of animals, especially tuberculosis, and also to the hygiene of milk.

D.—Sections of the Congress:

1. Public veterinary medicine; control of food. II. Pathology and bacteriology. III. Practical veterinary medicine. IV. Zootechny and veterinary hygiene. V. Tropical diseases of animals.

E.—Meetings of Sections: the 16th and 17th September, at 2.30 o'clock p. m.

First Section.

1. Inspection of fish, game, poultry, crustaceæ, and of other animal foods, not included in the question 5 of the general meetings, in relation to the hygiene of man.

2. Insurance of stock in relation to obligatory meat inspection.

3. Disinfection of the vehicles of transport and animal products in international traffic.

4. Sero-therapy and sero-prophylaxis of foot-and-mouth disease and their value from the point of view of legal sanitary police.

Second Section.

1. The diagnosis of infectious diseases by means of the recently discovered reactions of immunity (except the subcutaneous injection of tuberculin and mallein).

2. Etiology and pathogeny of malignant tumors, especially of carcinoma.

3. Vaccination against tuberculosis.

4. Anatomo- and histo-pathological diagnosis of rabies.

THIRD SECTION.

1. Specific chronic enteritis of cattle.

2. Infectious pleuro-pneumonia of horses.

3. Hemostasis in the modern methods of castration.

4. Pathology and therapeutics of streptococcic infections in the domestic animals.

5. New investigations of the two last years concerning chronic deforming arthritis of horses.

FOURTH SECTION.

1. Physiology of milk-secretion; relation between the external form of cows and the production of milk.

2. Influence of the various foods upon the quality of the products (meat, milk). Application of Kellner's principle in the nourishing of animals from the point of view of the production of milk, meat and strength.

3. Prevention of the prejudicial effects of the forced breeding for special purposes.

4. Teaching of zootechny.

FIFTH SECTION.

1. Hygiene in the maritime transport of cattle.

2. Sanitary police in colonies.

3. Teaching and laboratories for researches in tropical diseases.

F.—Official closing meeting, September 18, *at* 2 *p. m.*

As final notes, the circular adds:

1. The amount of the contribution has been fixed at 10 guilders = 17 shillings = 21 francs = 17 marks.

2. The application for the membership is to be addressed to Professor D. F. van Esveld, of the State Veterinary School at Utrecht, General Treasurer, accompanied by an order for the above-mentioned amount.

3. The members will receive the plan of the statute of the Congress, in addition to their card.

4. The names of the reporters will be published as soon as possible.

5. During the Congress the monument of the late Professor Thomassen will be inaugurated in the Veterinary School at Utrecht.

A. L.

New York's zoological park has 4,050 living specimens, the next largest being in Berlin, where there are 3,150 specimens.

Veterinary Colleges of the Old World.—President James, of the University of Illinois, has returned from his trip abroad, which had for one of its missions an investigation of the principal veterinary colleges of the old world. He was astonished at the importance attached to these institutions and the activities of several nations in extending and perfecting their work. Belgium has spent over $1,000,000 on a new plant for its veterinary college, and Germany has planned to expend considerably more than double that amount in reconstructing and re-equipping its veterinary schools. It is likely that work on the new state college, which will be located at the Chicago stock yards, will soon begin. The breaking of ground has awaited President James' return, with the helpful suggestions he has gathered on the other side.—(*The Breeders' Gazette.*)

A Large Tumor.—There arrived at the Bourbon Stock Yards, Louisville, Ky., on October 18, 1908, a cow weighing about 1,100 pounds, and probably ten years of age. Her abdomen was very large and, while she was able to walk from the car, she was soon afterward found down and unable to rise, whereupon she as ordered destroyed by the city live stock inspector and the carcass was taken to a nearby fertilizer plant for final disposition. Upon dissection there was found in connection with the uterus a tumor which weighed, including the very small portion of normal uterine tissue remaining, 350 pounds.

From a macroscopical inspection only, the tumor seemed mostly of a fatty character, although portions of it were quite hard and dense and apparently fibrous in structure.—(*G. W. Butler, Veterinary Inspector, B. A. I., Louisville, Ky.*)

ORIGINAL ARTICLES.

MEASURES AGAINST ANIMAL TUBERCULOSIS IN DENMARK.

By Dr. Bernard Bang, Professor of Pathology and Therapeutics, Royal Veterinary School, Copenhagen, Delegate of the Danish Government.

Report of the Danish National Committee submitted to the International Congress on Tuberculosis, Washington, D. C., 1908.

Measures against tuberculosis among domestic animals were first taken by the state by Act of April 14, 1893, relating to the Prevention of Infectious Diseases Among Domestic Animals. According to section 11 of this act cattle owners are prohibited:

(a) From sending animals (cattle and pigs) that *obviously suffer from tuberculosis,* to fairs and cattle shows, to common pastures, stables, etc., of other cattle owners as well as from selling such animals, except for slaughter.

(b) From selling or using as human food animals or any part of an animal, *obviously suffering from tuberculosis,* unless a veterinary surgeon's certificate be produced stating that a previous examination of the carcass and the entrails has shown the meat to be fit for human consumption.

(c) From selling the milk of cows suffering from *tuberculosis of the udder* or using it as human food or in the preparation of food or as food for animals, except when *boiled.*

These measures have, however, produced few practical results. It is true that a number of animals have been rejected when presented for admittance at fairs and common pastures or for exportation, and no doubt the sale of such animals for other than killing purposes has now and then been prevented; still, it is difficult to impose fines in such cases, the term *"obviously tuberculous"* being too vague. Paragraphs b and c were amended later, so as to provide more fully for the cases mentioned in them.

By the Act of April 14, 1893, relating to *State Help Towards the Combating of Tuberculosis Among Cattle,* an attempt was

made to encourage cattle farmers to take measures to get rid of tuberculosis among their stock. By this act a sum of 50,000 Kr.* yearly (afterwards increased to 100,000 Kr.) was—for a term of five years—placed at the disposal of the Ministry of Agriculture to pay for gratis distribution of *tuberculin,* for *the injection of this substance by veterinary surgeons,* for measuring the temperature of the animals and for giving directions as to isolation, if the farmer in question wished to apply the *tuberculin test* to ascertain which of his animals were infected with tuberculosis, but only *on condition of his binding himself to keep the healthy animals safely isolated from those suffering from tuberculosis.*

As the primary object of these measures was to promote the breeding of *healthy young cattle,* at first only young animals were tested gratis; soon, however, the test was also applied gratis in the case of full-grown animals, and gradually it became quite common to subject the whole stock of a farm to the tuberculin test in order to make it possible to isolate the healthy among the full-grown animals.

The passing of this act was chiefly due to a proposal of B. Bang, who for some years past had been studying the efficacy of tuberculin for proving the existence of tuberculosis among cattle and other domestic animals and who had worked out a system for the extermination of tuberculosis in an infected stock by thorough *isolation* of the animals that were not yet attacked and by *preventing the transmission of infection through raw milk.*

According to Bang, *tuberculosis is a purely contagious disease.* It is true that infection may take place in the uterus so that the calf is born tuberculous, but this happens very rarely, practically only when the cow is highly tuberculous. *Most calves are born healthy,* even if born of somewhat tuberculous cows, and they will remain so, if they are only preserved from infection. In the first place, *tubercle bacilli are not ubiquitous.* They are mostly found in stables, where tuberculous animals discharging

* 1 Kr. (Krone) = 100 O. 1 (Ore) = about 26 cents.

tubercle bacilli are or have lately been stabled. Secondly, *raw milk very often transmits infection,* mostly, it is true, when the udder of the cow is attacked, but also frequently when this is not the case, partly because tubercle bacilli *may* be excreted through an apparently healthy udder, if the cow is highly tuberculous, partly because the pure milk may be fouled by the introduction of tubercle bacilli through flux of the uterus or by particles of the feces of highly tuberculous cows.

The tuberculin tests proved that a great number of cattle of all the herds *among which tuberculosis had long been prevalent* were infected with this disease. *Post mortem examinations proved, however, that most of the reacting animals were only slightly affected;* in many cases only small caseous-calcareous *deposits* were found in a few of the lymphatic glands, processes that no doubt often remain unchanged for years or are even sometimes cured.

According to Bang, therefore, there was no reason to kill milch cows that did not show clinical signs of tuberculosis, but only reaction to tuberculin. So long as they were stabled in isolated stables, there was no reason why they should be killed or why their milk should not be used and *calves bred from them,* provided the latter were as soon as possible removed from the infected stable and were not infected by being fed on the raw milk of tuberculous animals. The highly tuberculous animals should not, of course, be allowed to form part of the stock, but should be killed as soon as possible—a measure which had certainly been taken rather often in former times though not nearly as often as circumstances demanded.

It will be seen that these measures—devised by Bang and founded on the above facts—for combating tuberculosis among cattle, interfered as little as possible with the breeding. He wanted farmers to remove from their stock only such animals as from reasons of general economy they would feel inclined to remove, *i. e.,* the animals that a merely clinical examination proved to be tuberculous. They were allowed to keep those that

did not appear tuberculous until subjected to the tuberculin test, as long as they found they yielded sufficient milk, and to breed their calves, if only they took good care to keep the latter isolated from the perfectly healthy animals. If the isolation could not be carried out in any safer way (which would, of course, be preferable), a part of the stable might be partitioned off by a wooden partition, reaching from the ceiling to the floor. The common water-pipe would have to be cut off, or if this was not practicable, it might be sufficient to let the water pass *first* through the part of the stable reserved for the healthy animals. If absolutely necessary, it would be permissible to have tight-fitting doors in the partition wall—though this has certainly often proved a drawback, it being, of course, very difficult to keep such doors shut when not in actual use. Whenever it is at all possible, as it would be in the case of a large stock, there ought to be two sets of stable hands—one for the healthy animals, one for the infected ones. If this was not possible the servants would have to tend and milk the healthy animals *first* and have two sets of boots or shoes and overalls as well as of implements, one for each class of animal. In the pastures the two divisions would also have to be kept apart as much as possible, though the danger is considered to be less when the animals are grazing than when they are in the stable.

As from the very outset it was quite clear to Bang that isolation of the animals on the same farm, especially if such had to be effected in *one* building by means of a partition wall, could not be a complete guarantee against the introduction of contagious matter among the healthy animals, and that the tuberculin test was not in every case quite infallible (for instance, the animals might have been infected just before the test and so be unable to react), he directed that the healthy division was to be subjected to the tuberculin test once—or preferably twice—a year, so that those animals which, in spite of the isolation proved to be infected, might be removed without delay from the healthy division to the reacting one, his object being *the gradual purifi-*

cation of an infected stock during the course of several years. It would thus become possible for a farmer possessing a stock in itself valuable, though infected with tuberculosis, to gradually convert it into a healthy one by breeding from his own stock.

As early as 1892 Bang was enabled by a special government grant to demonstrate the practicability of his theories by gradually changing a highly tuberculous stock into a healthy one. The farm of Thurebylille was selected for this experiment. On the first application of the test 131 animals reacted, while only 77, mostly young animals, were found to be healthy. Of the milch cows 80 per cent. reacted, and of the young cattle and calves only 40 per cent. The isolation of the two classes, the reacting and the healthy ones, from each other was effected by partitioning off a part of the stable with a solid wooden partition, the shed occupied by the calves forming part of the healthy division. There were two sets of stable hands, one for each of the two divisions, which were, moreover, kept apart when grazing as well as in the stable.

The practicability of the plan was soon proved, as the calves which were born in the infected division of reacting parents were nearly all found to be healthy (very few being born tuberculous) and remained so, provided they were at once removed from the infected stable and fed on boiled milk, their mother's milk (raw) only being given to them an the first day.

Still, as had been expected, year by year some of the animals of the healthy division did not pass the half-yearly test; in other words, some infection was introduced into the healthy division in spite of the isolation. Generally it was only one or a few per cent. that did not pass the test; on a few occasions, however, it was as much as nine per cent. It will thus be seen that the elimination of the infection proceeded rather slowly, but then circumstances were rather unfavorable, because the isolation was not a thorough one, the daily control less effective than might have been desired, and lastly because the farmer was not sufficiently alive to the importance of removing highly tuberculous animals, discharging great quantities of bacilli, from the reacting division.

In spite of these drawbacks the healthy division increased year by year and at last the task of eliminating the disease was successfully accomplished by selling the remainder of the reacting division, about thirty head of cattle. The farm is now one of those that supply Copenhagen with "Milk for Infants" (*i. e.*, superior milk); the stock is every year subjected to the tuberculin test and the last time, in 1907, *not one* out of 211 animals reacted.

As the Act of 1893 provided generous assistance to such cattle farmers as were anxious to improve the sanitary condition of their stock by employing the method which had been tried at Thurebylille, a great number of both small and large farmers set to work, in many cases with excellent results. At all large farms, however, where tuberculosis is generally very prevalent, the elimination of infection progressd *slowly,* just as had been the case at Thurebylille, a few of the animals of the healthy division reacting whenever they were subjected to the test a second time. The stricter the isolation, the better the results; the best results being, of course, achieved, when it was possible to remove the healthy animals to another farm. The thorough *disinfection* of stables where highly tuberculous animals had been stabled, in order to destroy all contagious matter, often proved a very difficult task, especially in buildings where the woodwork and the stone floors were old and dilapidated. Where tuberculosis was not very prevalent, as was very often the case among small herds and sometimes even among large ones (in one case, for instance, only 6 animals out of 134 reacted), it was of course easy enough to root out the infection completely.

By means of the numerous tuberculin tests which—especially during the first few years after the introduction of Bang's method —were applied to cattle in all parts of Denmark, *much valuable information was obtained as to the extent of tuberculosis in Denmark,* closely corresponding with the results obtained in all other countries where tuberculin was largely used. In many herds the disease was very prevalent. Among *large* herds (*i. e.*, herds numbering 50 or more animals), only few proved to be quite free

from tuberculosis. Among stocks of this size the average number of reacting animals was 50 or 60 per cent., while among *small* herds (numbering less than 50 animals), *a great number,* about one-fourth, were perfectly healthy, and the number of reacting animals in infected " small " stocks, was considerably less than that of the large ones, hardly 30 per cent.

The fact that a great many small stocks consist of none but healthy animals (in 1898 there were 2,203 stocks, numbering 30,101 animals, on an average 14 in each), clearly shows that the opinion, prevalent among many medical men, that tubercle bacilli are *ubiquitous,* is fallacious. They are never found except in places where animals (or human beings) discharging tubercle bacilli, live or have lately lived. Tuberculosis is a purely contagious disease.

This view is strikingly confirmed by a closer examination of herds, among which tuberculosis is found. Only such herds are perfectly healthy as are kept up by *breeding,* receiving hardly any increase from outside, except a calf now and then, *while the prevalence of tuberculosis is generally the greater the more frequently the stock is increased by buying cattle at fairs,* and consequently the most infected parts of the country are those where a brisk trade in cattle is being done and where buying and selling of cattle is common.

Another way by which infection may be introduced among hitherto healthy stocks is by feeding calves on *skimmed milk* from a co-operative dairy, amongst whose suppliers will always be found owners of tuberculous cattle. In cases where the infection had been introduced through the milk, the cows were very often healthy, while it was the calves or the young cattle that reacted; sometimes the peculiar fact might be observed that only animals of the same age, for instance, yearlings or two-year-olds reacted, and when this happened, the heating apparatus of the dairy was found to have been out of order just at the time when milk was supplied to the set of animals that had reacted.

In all other cases the tuberculin test proved conclusively *that tuberculosis is more prevalent among old than among young*

cattle. A close examination of 40,624 head of cattle, which during the years of 1898-1904 where subjected to the tuberculin test *for the first time,* showed that of calves under 6 months 12.1 per cent. reacted, of yearlings (from 6 to 18 months) 27.5 per cent., of two-year-olds (from 1½ to 2½) 38.6 per cent., of full-grown animals (from 2½ to 5) 44.9 per cent., and of animals over 5 years old 48 per cent., figures which correspond with the results of tuberculin tests in other countries, as well as with the experiences of slaughter-houses and with the results of the study of human tuberculosis.

The *method* recommended by Bang *for enabling cattle farmers to combat tuberculosis by their own efforts, i. e.,* strict *isolation* of the healthy animals and feeding calves on uninfected milk [milk of perfectly healthy animals or milk heated to 85° C. (now only 80° C.)], had at first many enthusiastic followers, as will be seen by the following tables:

	Stocks.		Number of animals tested		Percentage of reacting animals
	Total Number	Number of stocks tested the first time	Total Number	Of these reacted	
April 1893—June 1894	327	327	8401	3362	40.0
June 1894—October 1895	1873	1645	44902	17303	38.5
October 1895—May 1896	930	749	20791	6622	31.9
May 1896—June 1897	7316	3012	24897	21668	25.5
June 1897—May 1898		2165	65788	15642	23.8
May 1898—January 1899	1454	618	35533	7725	21.7
1899	1293	543	33568	6759	20.1
1900	1101	417	26078	4976	18.0
1901	695	259	18818	2857	15.2
1902	895	396	23347	3531	15.1
1903	646	213	19364	2875	14.8
1904	738	277	23164	3750	16.2
1905	705	221	24161	3370	13.9
1906	689	294	25035	3398	13.6
1907	580	232	22982	2252	9.8

After a few years, however, there was a sad falling off. The carrying out of the above measures demands great vigilance and perseverance on the part of farmers as well as on that of their servants, qualities not often met with! The importance of strict isolation was not at first realized by all, the watchfulness was often relaxed, the disinfection of the stables was not always as thorough as it should have been, the milk was not always sufficiently heated. Many farmers thought the method too *troublesome* in the long run. If accidents happened so that too many animals of the healthy division reacted on the repetition of the test, the farmer would lose courage and listen to the many voices (especially those of butchers and cattle dealers), eager to assure him that the tuberculin test was mere humbug. The serious misuse of *tuberculin* in employing it for the *immunization* of *cattle intended* for *export* to Germany for *killing purposes*—these animals, according to the peculiar German regulations, are to be subjected to the tuberculin test in passing quarantine at the German frontier—contributed greatly to the dissemination of wrong ideas among the public. The well-known and unfortunate circumstance that highly tuberculous and consequently infectious animals sometimes do not react at all or only very slightly, must also be taken into account, veterinary surgeons sometimes neglecting to subject the non-reacting animals to a sufficiently careful clinical examination, so that it sometimes happened that a specially infectious animal was placed among the healthy ones.

However, although there was a great falling off, many farmers have persevered and most of them—both owners of large and of small stocks—have obtained excellent results. For instance, on the first application of the test in 1894 at the farm of Borupgaard in Jutland, 139 out of the total number (82 per cent. of the full-grown animals) reacted and only 86 were found to be healthy. When the test was applied at the same farm in 1908, out of 245 animals only *one* calf reacted and so slightly that the reaction must be considered doubtful. This excellent result had been attained by *strict isolation* (division of the large stable by

a wooden partition and separate stables for calves and young cattle). According to the careful calculations of the owner of the farm, the total expense of the isolation was about 1,000 Kr.

When the test was first applied in 1896 at Count Wedell's estate, Wedellsborg (Funen), 166 of the animals reacted and only 74 were found to be healthy. Now there is a stock of 264 head of cattle, of which only 3 reacted in 1908. In this case the division of the stable had been effected by means of a brick wall. Although during the first few years very few of the animals did not pass the half-yearly tests, the result was now and then rather bad, as when on one occasion as many as 22 per cent. reacted, which discouraged the owner of the estate so much that he very nearly gave up the whole thing. Fortunately, however, he persevered, and eventually reaped the reward of his exertions.

A well-known cattle breeder, Mr. Ahlmann of Langholt and Striben (Jutland), had, in 1895, 271 reacting and 68 healthy animals. At present the reacting division has been reduced to 10, while of the remaining stock on his two farms only 6 out of 373 animals reacted at the last test. Mr. E. Tutein of Edelgave (Sealand), had, in 1895, 115 reacting animals and 48 healthy ones; the last time the test was applied, only 2 out of 158 reacted. As early as 1899 Bang in the report submitted by him to the veterinary congress of Baden-Baden (Congress Report, vol. I., p. 541), expressed his opinion that the best way of rooting out tuberculosis in a large stock among which the disease had long been prevalent, would be to subject at first only calves and young cattle and none of the full-grown animals to the test, as experience had shown that among such a stock 80 per cent. or more of the full-grown animals would react. Consequently only very little would be gained by isolating the 10 or 20 per cent. of non-reacting cows, as a great number of these animals, having for a long time been exposed to infection, would turn out to be infected, even if they did not react. Not a few of such cows will be found to have in some of the lymphatic glands small tubercles of long standing, encysted, it is true, and consequently harmless

but still in some cases liable to break out again. By not subjecting the full-grown animals of their stock to the test, farmers would avoid the unpleasantness of learning (and of having to tell their friends!) that the greater part of their stock was infected, and the task of isolation would be the easier at first.

It is really beyond comprehension that every great cattle farmer, who is the owner of a valuable herd and *knows* it to be infected, does not take the simple precaution of *isolating his calves* from the full-grown animals of his stock and feeding them on *uninfected* milk, *i. e.,* milk that is sufficiently *heated* or milk from a few *perfectly healthy* (non-reacting and clinically examined) *cows.* In countries where the "artificial" feeding, which is common in Denmark, is unknown, a way out of the difficulty would be to make some perfectly healthy cows act as wet nurses and suckle the calves. Indeed, as has been proved by the Hungarian *Ujhelyi,* good results may be achieved, even if the mothers are allowed to nourish their own calves, provided the calves are kept in separate stables except when they are let in to their mother for feeding two or three times a day. This breaking away from the isolation rule involves, of course, some danger of infection; there is, however, a great difference between such a brief exposure to infection and constant cohabitation in the same stable day and night.

Of course the isolated calves should be subjected to half-yearly tuberculin tests so that the infected ones may be removed as soon as possible, and *the healthy stock which is being formed by the above measures should of course be kept continually apart from the old infected stock.* The *Ostertag* method of keeping the healthy animals isolated only as long as they are young and later stabling them together with the full-grown cattle, cannot by any means be recommended, as the infected stock, even though its sanitary condition may be *improved* by removing the most infectious animals by means of a careful *clinical control,* will never be so completely rid of animals that may transmit infection, as to obviate further danger. This cannot be attained by the clinical control alone.

For great landed proprietors, owners of *several* farms, it will be an easy matter to get rid of tuberculosis by sending all the healthy animals of their stock to one of their farms and gradually—by means of the above method—eliminating the infection from the herds of their other farms. The following account of how matters were managed at the farm of Ourupgaard and three other farms at Falster, belonging to Mr. Fr. Tesdorpf may serve as an instance to show how infection may be rooted out in this easy and cheap way. Here a beginning was made in 1893 by subjecting calves and young cattle of the stock of Ourupgaard, but no full-grown animals, to the tuberculin test, with the result that 31 reacted while 152 were found to be healthy. The healthy animals were strictly isolated first at Ourupgaard, in separate stables, later at two of the other farms. During the succeeding years the testing of this healthy stock of young animals, as also of the calves that were born, was continued. At first the result here, as at many other farms, was sometimes rather unsatisfactory, for instance in 1896, when 23 animals out of 361 reacted, but in time as the isolation was carried out more and more carefully, better results were obtained, until last year, when at the four farms belonging to Mr. Tesdorpf, only 11 animals out of 876 reacted. At one of the farms there is still a herd of 114 reacting (or non-tested) animals.

Just as good results have been obtained by Count Danneskjold-Samsoe at his three large farms in the island of Samso. Here, as early as in 1891, a beginning was made by testing the calves, of which relatively few reacted. The reacting animals were killed and the healthy calves and young cattle were kept isolated for some time, only, however, until the beginning of the calving season, which was certainly a great mistake (one that could not be prevented, the test being a private one). They were then placed in the large, well appointed stable together with the non-tested cows, which, though apparently healthy, infected the others, so that when at length Bang, in 1898, prevailed upon Count Danneskjold-Samsoe to have the whole stock, which dur-

ing six or seven years had been continually recruited with absolutely healthy young animals, subjected to the test, 286 animals reacted, while only 29 were found to be healthy! From that time the healthy animals were kept isolated at two of the other farms. In 1901 there were at one of these farms 208 animals which all passed the test and at another 126, four of which reacted. In December, 1907, there were in the healthy division 593 animals, of which two reacted, though doubtfully, on being subjected to the test. In addition there was still at one of the farms a reacting division of about 30 cows. So the great task of changing a large tuberculous stock into an all but healthy one by breeding had been accomplished in 10 years, an excellent result indeed!

Excellent results may also be obtained by isolation at *one* farm as will be seen by the two following instances. In 1896 Farmer Langermann of Faurholm had 45 calves subjected to the test, 15 of which reacted. From that time until now, the calves bred at the farm have been tested and kept isolated, while the full-grown animals of the stock were not tested at first. That they were highly tuberculous was proved by the fact that 19 of the apparently healthiest cows reacted on their being subjected in 1900 to the test as an experiment. Gradually a perfectly healthy stock has been bred, numbering—in April, 1908—197 animals, *none* of which reacted when tested.

At the large estate of Voergaard in Jutland (belonging to Mr. Scavenius), the same method of leaving the full-grown animals untested at first was adopted. In 1895, 94 yearlings and two-year-olds were tested, half of which reacted. The result of continued isolation of the calves and the young cattle and repeated tuberculin tests (of the calves twice yearly, of the older animals only once) is that there were in 1907 healthy divisions numbering 443 animals of which only 9 reacted upon the application of the test, and a reacting division of 41 animals. The manager of the cattle farm was much struck by the gratifying fact that *the cows live much longer now than at the time when tuberculosis*

was prevalent among them, a fact that is of course of the greatest importance as regards the profits of cattle farming, and which is generally taken too little into account.

It is by no means only at the large farms that excellent results have been obtained by the method of isolation. It is indeed quite possible to carry it out at *the same farms as well.* The difficulty at these farms is, of course, to find two sets of stable hands to tend and milk the two divisions, but on the other hand there is the advantage that at a small farm nothing escapes notice and that the farmer can personally see to the execution of his orders. A small farmer, if he has only intelligence enough to grasp the main point, can, much more easily than a great landowner, take care that the transmission of infection is avoided. Generally it will not be necessary to have two sets of stable hands, if only the rule of tending and milking the healthy division *first* is strictly adhered to and if the hands change their boots or shoes, and—preferably—their overalls as well, on going from one division to another, and use different sets of implements in the two divisions.

It is a fact that the carrying out of the method of isolation has been attended with excellent results on many small farms. Where only few animals reacted, it was easy enough to get rid of the disease; but also in cases where almost the whole stock was infected, the *gradual* elimination was often successfully accomplished. It may here be mentioned that it repays one's trouble to work for small farmers, men who have felt their economic existence threatened by the prevalence of tuberculosis among their cattle. These men are deeply impressed with the importance of getting rid of the disease and so take more care in performing their daily duties to avoid the transmission of infection than do most others.

The result of a computation made by Bang in 1905, was that at 66 small farms, of which the average number of stock was 29 head of cattle, a gradual changing of what were for the most part highly tuberculous herds into healthy ones had been successfully accomplished by the method of isolation. When this work was

begun the total number of reacting animals on these 66 farms was 1,045, and of healthy ones 780; when it was finished there were 1,896 healthy animals and *none* reacting. On being asked, several of these farmers told Mr. Bang that the work had certainly caused a good deal of trouble, but that the expense was nothing to speak of. Thus one farmer had by spending a sum of less than 200 Kr. on the establishment of two small provisional byres in one of his farmhouses, succeeded in changing his highly tuberculous stock (12 cows and heifers of which he had to sell for a mere song within a few years) into a perfectly healthy one, numbering 30 head of cattle—in 1907 there were 36—which have been several times subjected to the tuberculin test and have each time been found to be healthy. Other farmers have achieved similar excellent results at still smaller cost.

It will thus be seen that there is not the slightest doubt that both small and large cattle farmers may gradually change a tuberculous stock into a healthy one, if they are determined to do it and if they have quite grasped the nature and the modes of infection of tuberculosis.

N. O. Nielsen, veterinary surgeon (Remkolde near Vordingborg, Sealand), has had the good idea to persuade a great number of the small cattle farmers of his district to join an association with the object of "promoting the breeding and maintenance of healthy, non-tuberculous stocks of cattle and pigs." Only such farmers are allowed to join who have had their stocks subjected to the tuberculin tests and, in case of its proving only *partially* healthy, have suitably isolated the healthy animals from the diseased ones. No increase of the stock by animals of other stock except calves under one month is allowed, unless they come from a healthy stock and have been found healthy on being injected with tuberculin. The object of the association is, besides setting a good example, to facilitate the purchase of healthy animals, as members who want to buy or sell may apply for advice to one amongst them, who keeps a list of the farms where healthy animals are for sale. To some of the members is delegated the task

of superintending the heating of milk at the dairies. Members pay a subscription of 2 Kr. yearly.

The association was started in December, 1905, and has prospered so much that it has now 125 members possessing stock amounting to 2,740 cows and young cattle. [According to a report dated January 1, 1908, 2,070 of the 2,442 animals of the association were healthy and only 14 of the members had reacting (isolated) animals, 372 in all.] Within three years the task of rooting out tuberculosis from 25 stocks of cattle has been accomplished by means of killing or selling the reacting animals. (On the first application of the test 85 stocks—most of them very small, it is true—were found to be healthy.) More than half of the cattle of the four parishes—the scene of the labors of the association—belongs to members. There is no doubt that such association may do much towards rousing an interest in small farmers in the great problem: How to breed healthy cattle and pigs. "Union is Strength," may be more truly said of Denmark, where so much is achieved by *co-operative farming,* than of any other country.

The growing interest in the rational application of the tuberculin test and the method of isolation has—in addition to the founding of the above association—manifested itself lately in another way.

During the last seven or eight years several thousand head of *Jersey cattle* have been imported into Denmark direct from the island of Jersey. These cattle, as well as all other cattle that are imported for breeding purposes, must undergo a brief quarantine detention and are subjected to the tuberculin test (in accordance with the Act of February 5, 1904, relating to the Combating of Tuberculosis among Cattle and Pigs). This has further corroborated the truth of the already well-known fact—that tuberculosis is all but unknown among the Jersey cattle, an interesting circumstance which is accounted for by the fact that the Jersey stock has been kept pure for more than 100 years, the importing of cattle, except for immediate slaughter, being prohibited, prob-

ably to prevent the introduction of rinderpest. Of the Jersey cattle mported into Denmark, only very few animals reacted on being subjected to the test, and when these animals were killed, it was either quite impossible to demonstrate the presence of tuberculosis (accidental fever) or it was found to be present in a very slight degree only (perhaps caused through human infection?). On being placed among infected Danish cattle, healthy Jersey cows will very soon become tuberculous; sometimes even they have been known to give way to the disease quicker than Danish cattle. The man who first imported Jersey cattle and who is the most eager advocate of the introduction of this excellent breed, which, owing to its wonderfully rich milk, is of special value to a butter-producing country, viz., Mr. J. Larsen (Gaardbogaard), was fortunately also a very eager advocate of the use of tuberculin and has always taken good care to keep his stock free from tuberculosis. Consequently it has been easy for him to induce the majority of the cattle farmers who import Jersey cattle to keep their newly imported animals free from the disease by means of isolation. There are at present about 5,000 head of Jersey cattle in Denmark—on small as well as on large farms—most of which are either quite free from tuberculosis or successful efforts are being made to make them so. At many of these farms the stock is composed exclusively of Jersey cattle, at some the breed is mixed.

The foregoing is chiefly an account of what is being done in Denmark *to combat tuberculosis among cattle by the cattle farmers*, assisted by the state, *which pays the expenses attendant on the tuberculin tests* on condition the farmers bind themselves to keep the healthy animals safely isolated from the infected ones. In conclusion follows an account of the two *measures* with the same object (*as passed by the Legislature*):

The amendment in 1898 of the Tuberculosis Act of 1893 provides that *all cows found suffering from tuberculosis of the udder* are to be killed and that a partial *compensation* is to be paid to the owner by the state; further that all *skimmed milk* and

butter milk returned from dairies to be used as food for calves and pigs is previously *to be heated to* 85° *C.* In 1904 an amendment was added providing that the compensation for a cow, killed on account of tuberculosis of the udder, is to be increased a little, so as to represent one-third the market value of the carcass, calculated at the current average price for meat of inferior quality if the meat is declared by a veterinary surgeon to be fit for human consumption (which happens very rarely), and five-sixths *of the market value of the carcass* if the meat is condemned. By an amendment of the provisions relating to *the heating of the milk* it was provided that the milk is now to be heated to 80° C. instead of to 85°C., and that this provision is also to apply to *cream, destined for the making of butter for exportation.* The object of this later provision, which has, of course, in itself nothing to do with the endeavors to combat the prevalence of tuberculosis among domestic animals in Denmark, is to keep Danish butter free from viable tubercle bacilli. It cannot be said to have revolutionized the dairy work to any great extent, as the heating of buttermilk has always been performed indirectly by heating the cream. Long before 1898 it was common enough to heat the cream very considerably in order to insure the perfect purity of the butter. There is no doubt that the usual heating of the cream and the adding of cultures of acidifying bacteria before the churning has contributed much to the practically invariably superior quality of Danish butter.

The object of the killing of cows suffering from *tuberculosis of the udder* is to get rid as soon as possible of these animals, through which, more than through any others, infection may be spread to calves, pigs and other domestic animals and also, undoubtedly, to human beings, especially children, if the milk is taken raw. The endeavors to combat tuberculosis of the udder have met with great sympathy among Danish farmers. About 2,500 samples of milk of cows, suspected of suffering from this form of tuberculosis, are sent in yearly through veterinary surgeons to the laboratory of Dr. Bang, and the microscopic ex-

amination of these samples, either of the particles, produced by exudation or—in case of the milk being unchanged—of the sediment after centrifugation showed tubercle bacilli to be present in about 30 per cent of the cases. After the killing of the cow parts of the diseased udder are subjected to examination in order to ascertain the correctness of the diagnosis, which in only about one per cent. of the cases has turned out to be at fault. About 700 cows are killed every year and the compensation paid for them generally amounts to 50,000 Kr. yearly.

The object of the killing of cows suffering from tuberculosis of the udder is of course best attained if the case is established when still at an *early stage*. The fact is therefore worth mentioning that of the 6,228 cows suffering from tuberculosis of the udder, destroyed in Denmark in the course of ten years, 2,149, or 34.5 per cent. were still at a very early stage of the disease, as the secretion of the diseased gland still had the appearance of natural or almost natural milk. In many other cases also the rooting out of these infectious animals has had great hygienic importance, as cows suffering from tuberculosis of the udder may often go on living for months after their milk has changed, and even though at this stage the milk is not generally mixed with uninfected milk, it still contributes to spread infection in the stable by being milked on the floor.

The compulsory slaughter of these animals is therefore indubitably justified, but much more ought to be done. The best thing would be to order all cows, suffering from "open tuberculosis," *i. e.*, all which discharge tubercle bacilli through any of the excretory ducts, to be destroyed to the owner and partial compensation granted. Should the authorities hesitate for the present from acting upon this recommendation—partly because of the expense, partly because it may be rather difficult in some cases to decide whether a coughing cow is suffering from pulmonary tuberculosis, especially of an ulcerative, infectious form—there is at any rate *one* form of tuberculosis, which is extremely easy to diagnose, as the presence of the bacilli may be proved directly,

viz., *tuberculosis of the uterus.* This disease, which seems to be even more frequent than tuberculosis of the udder, is most infectious; not only are enormous masses of tubercle bacilli every day spread in the stable through the discharge from the vagina, but a great number are no doubt mixed with the milk during the milking. It is six years since the veterinary authorities of Denmark recommended that the same action should be taken with regard to cows suffering from this disease as with cows suffering from tuberculosis of the udder, but up to the present day their advice has been disregarded.

The most important of all the measures against tuberculosis among cattle and pigs which have been carried out in Denmark is the law relating to *the heating of skimmed milk and buttermilk* to 80° C. before it is returned from the dairies. As in Denmark nearly all milk not sold directly for consumption is sent to co-operative dairies, it is clear that there is very great danger of a wide dissemination of tuberculosis, if *raw* skimmed milk and buttermilk are returned to the suppliers to be used as food for calves and pigs. There will always among suppliers of a dairy be one or more farmers who have a highly tuberculous stock, one or more cows of which yield in the course of the year great quantities of infected milk, and so, by employing this milk, after it has been skimmed, to feed other stocks, the infection is spread to hitherto healthy herds. As mentioned above, this was formerly done on a large scale, and there is no doubt that most stocks of cattle and pigs in Denmark would gradually be infected in this way, if measures had not been taken to prevent it. Of course the heating of the whey ought to have been enforced by law as well; this was proposed, but the proposal was not accepted, chiefly because the heating of the whey is rather troublesome. It is, however, to be hoped that this measure will be carried out some day, though, as whey is mostly used for feeding pigs, it is not so important as the other dairy products, as regards *bovine tuberculosis,* and, besides, cheese making is not nearly so considerable in Denmark as butter making.

In Denmark the observance of the law regulating the heating of skimmed milk is controlled by the police as well as by the margarine and butter inspectors, who procure samples at the dairies and send them to the laboratory of Prof. Storch, where they are subjected to his color test, which consists of pouring a few drops of *paraphenylen-diamin* and peroxide of hydrogen into the milk. The milk turns blue if it has not been heated to 80° C. Offenders against the act are fined. On the whole the regulations governing the heating of milk are fairly scrupulously carried out, though, of course, there are exceptions. The best plan would be for one or two of the suppliers of each dairy to apply the above easy and simple test every day. This is done in some places and has produced very good results.

One useful provision of the Tuberculosis Act is that the sediment, deposited on the sides of the cream separator, is to be burned, which is no doubt always done now. In old days this product was now and then used as food for pigs, and thus many pigs were infected, as it contains enormous masses of tubercle bacilli which are separated from the milk by the centrifugal force.

Act of February 5, 1904, Containing Measures Against Tuberculosis Among Cattle and Pigs.

A sum of 100,000 Kr. granted every year by the Rigsdag (Parliament) on the recommendation of the Committee of Ways and Means, shall be placed at the disposal of the Minister of Agriculture for the support of cattle farmers, who wish to employ tuberculin as a diagnostic remedy in combating tuberculosis among their cattle, the tuberculin test being applied according to detailed regulations issued by the Minister. The support shall be granted to none but such farmers as guarantee their ability to keep the animals, proved by the test to be healthy, safely isolated from the animals affected by tuberculosis, or which have not been subjected to the tuberculin test.

"The Minister of Agriculture shall—on the same conditions—be entitled to employ part of the sum to support cattle breed-

ing associations which wish to subject the animals selected for breeding purposes to the tuberculin test as well as to support farmers' associations desiring to subject cows belonging to cottagers to the tuberculin test."

Farmers who do not fulfill their obligations with regard to isolation shall return to the state the grants which have been made to them in accordance with the above provisions.

Any veterinary surgeon superintending the application of the tuberculin test on a farm shall satisfy himself under penalty of a fine that safe isolation between the animals is established and if his orders to this effect are not obeyed by the farmer, he shall notify this to the chief veterinary surgeon of the country.

"Applications from cattle farmers, cattle-breeding associations and farmers' associations desiring to take advantage of the opportunity offered to them by this Act of having their cattle subjected to the tuberculin test, shall be sent direct to the Minister of Agriculture."

Section 2.

Importation of live cattle from abroad shall only take place at such places as are mentioned in the regulations issued by the Minister of Agriculture. Immediately after their arrival the animals shall be quarantined and shall in accordance with the regulations of the veterinary police be subjected to the tuberculin test, according to regulations issued by the Minister of Agriculture, within five days after their arrival at the quarantine stable. After the test the non-reacting animals shall be left at the disposal of the owner while the reacting animals shall either be returned or taken direct to a public slaughter house or to a slaughter house recognized by the Minister of Agriculture, where same shall be destroyed under control of the veterinary police.

The expenses incurred in providing the requisite quarantine stables at the places of import as well as the expenses of the tuberculin test—but none of the expenses attendant on the other measures mentioned in this section—shall be borne by the state.

"The regulations relating to tuberculin tests, mentioned in section 1, shall also apply to such other diagnostic remedies as may be recommended by veterinary authorities for the combating of tuberculosis among cattle and are approved by the Minister of Agriculture."

Section 3.

Animals imported for killing purposes may be exempted from quarantining and the tuberculin tests ordered in section 2.

"Such animals shall—after having been branded (see section 4)—be taken direct to a public slaughter house or to a slaughter house recognized by the Minister of Agriculture.

"The Minister of Agriculture shall be entitled to permit cattle imported for killing purposes—after having been marked—being taken direct to a cattle market, where the animals shall be stabled so as to be—in the opinion of the veterinary police—duly isolated from all other cattle. From this place they shall be taken direct to a public slaughter house or to a slaughter house recognized by the Minister of Agriculture."

The animal imported for killing purposes mentioned in this section shall be killed within ten days after their arrival in this country.

Section 4.

"The Minister of Agriculture shall issue regulations for the marking of the imported animals."

Section 5.

Cows suffering from *tuberculosis of the udder* shall be killed in accordance with the regulations of the state under control of the veterinary police or in a public slaughter house. The owner shall be entitled to a compensation for the animal amounting to one-third of the market value of the carcass, calculated at the current price, according to regulations issued by the Minister of Agriculture. The owner shall further be entitled to a compensation for such parts of the animal as are declared by the

veterinary surgeon to be unfit for human consumption, amounting to half of the value of the condemned meat, calculated as above. Such parts of the animal as are declared fit for human consumption shall be left at the disposal of the owner.

The compensation as well as the expenses attendant on the killing shall be paid by the state.

Section 6.

None but such milk and buttermilk as has been heated to a temperature of at least 64° Reamur (80° C.) shall be returned from dairies to serve as food for cattle and pigs. Exceptions from this rule may take place when the heating cannot be performed on account of an accident, which fact shall be made known to the person to whom the milk is to be returned.

The heating mentioned in this section shall also apply to all cream destined for the making of butter for exportation.

The sediment scraped off the sides of the cream separator during the cleaning of the same shall be burned.

Section 7.

"None but such milk and buttermilk as has been sufficiently proved in the opinion of the Minister of Agriculture to have been heated to a temperature of at least 64° Reamur (80° C.) shall be imported from abroad. The Minister of Agriculture shall, however, be entitled to grant exemption from the above prohibition when special circumstances necessitate it."

Section 8.

The carrying out of the provisions of this act shall be enforced by the veterinary police, the custom-house officers and the butter and margarine inspectors in accordance with the directions of the Minister of Agriculture.

Section 9.

Offenders against the provisions of sections 1, 2, 3, 6 and 7 shall be liable to fines of from 10 to 20 Kr. for the first offense,

in case of repetition to fines of from 20 to 200 Kr. Repeated offences against section 6 shall not be looked upon as such if at least one year has elapsed since the offender was last fined. The fines shall accrue to the exchequer. The proceedings in these cases shall be summary. In the case mentioned in section 7 the prohibited articles shall be confiscated and heated to the temperature defined in the above section. In Copenhagen the proceeds of the sale of such articles shall accrue to the municipal fund, in other places to the poor fund.

SECTION 10.

This act, which shall not apply to the Faroe Islands, shall come into force October 1, 1904.

IN North Dakota the state allows no compensation whatever to owners who suffer loss occasioned by bovine tuberculosis, yet a law has been passed there providing for state aid in the case of glandered horses.

THE GRIM REAPER.—Death has been uncommonly busy during the past year. Old Sam Garlick passed in his checks last week, aged eighty-three; Aunt Peggy Skinner skipped the gutter at sixty, and Jake Spooner's stump-tailed bull died a lingering death of hollow horn. Thus passeth away mankind and youth in its very prime.—(*Tripoli Leader, Ia.*)

A NEBRASKA WEDDING.—A beautiful wedding took place early in October at the home of Mr. James Ely, Auburn, Nebr., when his charming daughter, Miss Alice Ely, was united in marriage to H. L. Feistner, D.V.S. Both Dr. Feistner and his bride are natives of Nebraska. We quote from an Auburn, Nebr., paper: "Dr. Feistner is a veterinary surgeon by profession and there is not another young man in the city who possesses a more sterling character than he. Sincere in all his beliefs, loyal to what he thinks is right, self-respecting in the largest sense of the word, with scrupulous regard for integrity, he has in him the elements which will make him a highly successful man, and one who will have the respect of all of his fellows." The REVIEW congratulates Dr. and Mrs. Feistner, wishing them long life and much happiness.

IMPORTANT RELATION OF THE VETERINARIAN TO PUBLIC HEALTH.*

By Fred. J. Mayer, M. D., Special Medical Inspector Louisiana State Board of Health, Secretary Louisiana State Sanitary Association.

In the State of Louisiana, outside of New Orleans, not many years ago, the veterinarian was an unknown quantity; horse doctors galore infested every community who, for a song, yea, verily, too often without a note of warning, armed with a general utility barlow blade, reeking with microbian filth, would scrape the buccal mucous membrane of one's favorite steed to cure the botts, deliver a sledge hammer blow on a plank laid over the poll of your Arabian for cerebral congestion, trephine the forehead with a common wood auger or tenpenny nail driven home for blind staggers; saw off the tail of the dove-eyed Jersey for hollow horn; instantaneously relieve glanders by forced inhalation of the fumes of burning feathers, filthy rags or noxious, malodorous weeds; infallibly cure anthrax by inunction, incantations, bleeding or cruel, crucial incisions in the tumors; stop tetanus by counter irritants, stuffing the wound with burnt wool and drenching with cockroach tea; and as a general alterative and tonic, or for kidney troubles, weak back, sore eyes or blindness, or as a last resort, when other procedure, medical or surgical, had failed, they would cut out the hooks and with a germ-infected blade remove the nictitans membrane which nature provides the horse in lieu of hands to cleanse the eye of foreign bodies; in view of all these barbarous practices, is it a wonder that this correlated branch of medicine and comparative anatomy fell into disrepute, and that the horse doctor had no status in medical and scientific circles. But a great change has come about; how great the change is manifested by the passage of Act 22 of 1908, regulating veterinary practice. Section 15 prescribes:

*Read before the American Veterinary Medical Association, Philadelphia, 1908.

"That any person who practices or attempts to practice veterinary medicine or veterinary surgery in this state without having first complied with the provisions of this act shall, for each and every instance of such practice be guilty of a misdemeanor, and on conviction thereof be fined in the sum of not less than $25 nor more than $100 or imprisonment for not less than one month nor more than six months, or both, at the discretion of the court, and any person filing or attempting to file as his own a license of another, or a forged affidavit of identification, shall be guilty of a felony and upon conviction thereof shall be subject to the punishment prescribed by law for the crime of forgery. All fines for offense under this act shall be paid over to the Board of Veterinary Medical Examiners to constitute a part of the fund of said board."

"Section 18. Be it further enacted, That the Grand Jury of each parish in this state is hereby given inquisitorial power over all offenses against or violations of this act, and the judges of the State District Courts shall give the same in their charges to the Grand Juries, and it shall be the duty of the Board of Veterinary Medical Examiners or any member thereof to report any violation of this act to the proper authorities."

And Act 274 of 1908:

"An Act to encourage the breeding of live stock; to create and established the Louisiana Live Stock Sanitary Board, specifying who shall constitute the same and how they shall be appointed; fixing compensation for the service of members, delegating powers and authority for regulating live stock sanitary matters and the right to establish and maintain quarantine lines, prevent the introduction and spread of Texas and tick fever or any of the infectious or contagious diseases of live stock; appoint officers and inspectors for the enforcement of regulations, and to fix their compensation; to prescribe their qualifications, powers and duties and to prescribe penalties for the violation of this act; to provide a sufficient appropriation to carry this act into effect."

The final passage of these acts show that the people are awakening to the difference between the educated veterinarian

and the horse quack, and to no one factor or collection thereof is this more attributable than to the ethical teachings by precept and example of your learned president, who as Professor of Comparative Medicine in the State Agricultural College, as Agricultural Editor of the New Orleans *Picayune,* as ofttimes conductor and lecturer to Farmers' Institutes, he has won the distinction by universal consent of being called State Veterinarian, and as such consulted by municipalities and parishes, although no such office exists in law; but he has done more, as President of the State Sanitary Association, as honorary member of the State Medical Society, as one of the original protagonists of the Louisiana System of Hygienic Education, he has raised the veterinarian above his honorable calling to a still higher plane—that of the sanitarian.

For too many centuries the reproach has lain against practitioners of medicine, whether among men or the lower animals, epitomized in the lines of the caustic poet:

> "Some fell by laudanum and some by steel
> And death in ambush lay in every pill;
> The piercing caustics ply their spiteful power,
> Emetics wrench and keen cathartics scour;
> The deadly drugs in double doses fly
> And pestles beat a martial symphony."

A wholesome reaction has set in, in both branches of medicine, and polypharmacy is giving way to drugs administered for certain physiological effects, to serum-therapy and other measures to strengthen or increase the phagocytic resistance to pathogenesis and to measures of prevention. Who in medicine to-day would think of combating tetanus in man or horse without resorting to the prophylactic use of anti-tetanic serum? In the cholera of both man and the hog, the immunizing value of vaccine virus, while yet in the experimental stage, holds forth some promise, indeed in the latter recent reports are gratifying in a lessened mortality; but it is not alone as an advocate of preventive medicine in veterinary practice that your attention is

asked but to the "Relation of the Veterinarian to Public Health," and that his *first duty* and *highest function,* like that of the physician, is to *protect the public health,* by bringing to bear the modern teachings of veterinary sanitary science to the suppression and prevention of disease common to man and the lower animals.

This newly recognized responsibility *raises the veterinarian to full fellowship with his medical brother,* for no medical man is better equipped than the comparative anatomist and physiologist to teach and practice those preventive measures for the suppression of contagious and infectious ills that depend on the lower animal kingdom for their transmission to man, or that are intercommunicable.

A Post-Graduate Institute of Comparative Medicine.

May I be pardoned the temerity of expressing the hope that this great international organization will take the initiative in establishing a post-graduate school or Institute of Comparative Medicine devoted to the study of those diseases common to man and the lower animals, and to the relation of insects to disease in both, where medical men and veterinarians may take a course, which neither should neglect; and that the university extension feature pursuant to the Louisiana System of Hygienic Education be added thereto and made its capstone. This system is based on the principles that: "Life is not mere living, but the enjoyment of health;" that "The sanitary safety of the republic is the supreme law;" that education must precede sanitary legislation to make the latter effective; that, having an inalienable constitutional right to life, liberty and the pursuit of happiness, all of which are inseparably connected with the sound mind in a sound body, it is the highest duty of the state to furnish this instruction to the masses; that this instruction can best be conveyed by the Louisiana System which correlates and coordinates all educational factors, medical, veterinary, legal, pedagogical and clerical, and focuses them on the supreme duty and effort of enlightening the masses in the cause and prevention of

communicable diseases, and most especially of those common to man and the lower animals or that are conveyed by insects, this being accomplished by a course of illustrated public lectures, before colleges, high schools, agricultural, pedagogical institutes; before legal, clerical, press and other conventions, and by special popular institutes of hygiene, by correspondence, sanitary catechisms and hygienic sermons. This scheme of hygienic education, never carried out in its entirety, was tentatively tested in Louisiana in the early eighties, passed the experimental stage successfully in the nineties, and in 1905-6 converted an entire people, black and white, to the mosquito doctrine of yellow fever transmission, so that to-day the bronzed dragon of death no longer stands as a menace to the commercial advancement of the state.

The intelligent application of the principles of this scheme of education to the larger problems involved in other communicable diseases, will have the same effect in removing the annual blight that falls upon the home and farm. But is there any crying necessity for such an Institute of Comparative Medicine? Does a high humanitarianism plead for it, or does public economy demand it? Are physicians and veterinarians sufficiently posted in comparative medicine to preclude the necessity for its establishment? One fact alone would warrant its founding, and that is that there are still some who, wrapping the mantle of the great Koch about them, insistently deny the possibility of the intercommunicability of human and bovine tuberculosis.

A brief allusion to some of the other diseases common to man and the lower animals will add strength to the argument in favor of its establishment, permit me then "to tell you that, which you yourselves do know."

Actinomycosis.—How many modern specialists in medicine or even the all-round, well-posted general practitioner would recognize a case of *actinomycosis* in the family cow, and trace a connection to some case that had baffled his skill, and yet the sporogenous *Actinomyces bovis* (ray fungus) is perceptible to the

naked eye in the pus and secretions of those infected, and the disease is common to both man and the domestic animals, the infection entering through mouth or nose, wounds, decayed teeth or infected food; while its intercommunicability has not been proven, it is generally recognized that barley, oats or rye serve as a vehicle for the fungus. Crookshank has pointed out its long and frequent unrecognized existence in England.

ANTHRAX.—How frequently in both man and the lower animals has the sporogenous *Bacterium anthracis* (Charbon) found entry through wounds, abrasions, etc., in skinning charbonous carcasses, or in eating their meat or drinking infected milk, or in sorting wool of charbonous sheep, or eating foodstuffs contaminated by infected flies or grown on infected pastures where earthworms brought up the spores, as pointed out by Pasteur, and more recently confirmed by Bollinger, or by being bitten by infected flies or mosquitoes. One would suppose that a disease known to Moses and described by Homer, and probably the first disease in which the agency of bacteria was indicated by Pollender (1849), Davaine (1863) and Koch (1876), would have attracted more general attention, for its suppression by physicians and lawgivers, on the Gulf littoral of Louisiana, where some of the finest grazing savannahs in the world have in many instances been made unfit for stock raising because of the willful, wanton and persistent neglect to cremate or deeply inter with sanitary precautions all infected litter and charbonous carcasses, the latter ofttimes dragged at the tail end of a cart over country roads probably infecting every foot of territory traversed, since the sporulation of the *Bacillus anthracis* takes place outside of the body, as it requires free oxygen; and then dumped where dogs, buzzards and flies serve as wide distributors of this resistent germ, entering new channels of infection, sometimes miles from the original focus of infection, carried on the feet or excreta of buzzards, or washed by creeks that traverse the infected area to pastures green and new.

Small wonder that the disease has caused an economic loss, in one year on a single plantation, enough to have established and endowed an Institute of Comparative Medicine in every parish where a focus of infection exists.

Glanders, caused by the non-sporogenous anaerobic *Bacillus mallei* found in the nasal secretions of glandered animals, and easily destroyed by boiling or bacillicides of ordinary strength, is another disease of animals (horses, asses) contracted by man through handling diseased horses or their trappings, the bacillus finding entry through wounds, abrasions or the mucous membrane of the nose, and yet how infrequent is the necessary disinfection practiced of the soiled discharges of those infected, even where the disease is recognized, and how often is destruction of all diseased animals postponed until the whole drove is infected; in the rural districts of Louisiana no effort is made to protect the infected from flies, mosquitoes or other insect carriers of bacteria, nor is mallein resorted to as a diagnostic test in epidemics of epizootic where a reasonable suspicion of glanders should exist.

Bubonic Plague.—The continued existence of the plague in South America, and its recent presence in California, is near enough to centres of rodent population in the United States for serious thought and active steps for the destruction of rats. The Indian Commission recently reported that "Bubonic plague in man is entirely dependent on the disease in the rat, being conveyed from rat to rat, and from rat to man by the rat flea; that these infectious fleas are frequently carried in clothing and baggage." More recently they quoted Verjbitski's doctoral thesis wherein, among other things, he has shown that all fleas and bugs which have sucked the blood of animals dying from plague, contain the *Bacillus pestis;* that their feces contain them as long as the *Bacilli pestis* are present in their intestines; that infected fleas communicate the disease for three days, and bugs for five days after infection; that the *Bacilli pestis* can remain virulent

for five months on infected textiles; that while the rat flea does not bite man, human fleas bite rats, and that fleas on dogs and cats bite both man and rats; that human fleas and fleas on cats and dogs can live on rats, which accounts for the infection of many children in India after playing with these domestic animals.

Dr. McCoy, M. H. S., has also observed leprosy in rats in San Francisco; add these sanitary dangers to the great economic loss inflicted by the rat, by what it eats and destroys, and the sanitary and economic necessity of exterminating them is apparent. The veterinary sanitarian by his greater knowledge of animal life than the medical sanitarian will find here a wide field for usefulness and civic duty, for he is the one the public will naturally turn to for information and advice on this subject in the event of plague visitation.

Hydrophobia.—The unrecognized germ of which is conveyed to man by the bite of any animal infected, whether dog, wolf, horse or cat, is probably also conveyed by midges and flies (Nocard) and mosquitoes, and by the milk of the infected. Here is a disease recognized since the days of Aristotle, for which Pasteur provided a method of attenuating the virus resulting in an antitoxine vaccine for the protection of individuals, and yet only a small per cent. of those bitten ever receive the treatment, and many that do are too far gone to be benefited as free cauterization of the wound should have taken place within thirty minutes after being bitten, or by failure to note what Roux has pointed out that the saliva of a mad dog is virulent for three days before symptoms appear. Surely the combined influence of the medical and veterinary professions ought to force the passage of dog-muzzling ordinances in every community and the killing of ownerless dogs, the maudlin sentimentalist to the contrary notwithstanding.

Smallpox.—Over one hundred years have elapsed since Jenner gave us a prophylactic, the intelligent application of which has stamped out the disease in Germany so effectually that Niemeyer twenty-five years ago in substance said that it had lost

its significance there, and was only seen among barbarous people. The veterinary profession could aid in lifting this reproach and in breaking down the prejudice against vaccination, by installing a vaccine farm in every populous centre, giving the masses an opportunity of seeing how the vaccine is made and receiving the inoculation fresh from a healthy calf, as was once done in Lima by the Peruvian authorities in their successful effort in breaking down the unreasonable prejudice against it.

It seems almost a work of supererogation to call the attention of a profession that was the first to apply the tuberculin test to cattle and that pointed out the danger of milk from tuberculous cattle which causes such enormous loss in human life and money, for in the United States alone, twice as many souls died from tuberculosis in 1907 as died from yellow fever there in one hundred years, and the economic loss there has been conservatively estimated at 300 millions of dollars annually. It is assumed that the intercommunicability of human and bovine tuberculosis is accepted by you in spite of the statement of Koch, in 1901, that "human tuberculosis differs from bovine, and cannot be transmitted to cattle."

The researches and writings of Behring, McFaydean, Crookshank, Ravenel, Salmon, Smith, Mohler, Moore, Melvin, Cotton and Schroeder, and both the eminent British and German Commissions on Tuberculosis, have most convincingly negatived the conclusions of Koch and confirmed the early teachings of Villemin (1865) and Chauveau (1868) as to the intercommunicability of human and bovine tuberculosis. Behring's experiments proved its transference to man through the medium of tuberculous milk, and that a large per cent. of infants are infected in this way; his experiments on newborn foals, calves and guinea pigs proved that the baccilli could pass through the intestine into the blood current while later in the development of the mucous membrane, their passage was inhibited, and he concluded the same obtained in infants, which would account for the greater frequency of tuberculous infection in infancy. Since from five to seventy-five per

cent. of the dairy herds tested throughout this country respond to the tuberculin test, we have here unquestionably the chief source of tuberculotic infection in children. The Schneiders of Cruzot proved that in France, for in combating depraved milk and furnishing a wholesome quality, they reduced the infant mortality during the first year of life (the most dangerous period) from eighteen per cent., the average for all France, to nine per cent. in one year.

It is hardly an exaggeration to say that fifty per cent. of the infant mortality of Christendom is due to the ingestion of tuberculous milk, that the assertion of the Royal Commission (1895) that: "As regards man we must believe that any person who takes tuberculous matter into the body as food incurs some risk of acquiring tuberculous disease." The *Bacillus tuberculosis,* whether human, bovine, avian or ichthian, is probably the same, differing only in so far as the nature of its environment makes necessary for its existence, this difference being modified or changed when introduced into a new environment as by successive passages through different animals, even where the change is from avian to animal, or from mammalian to cold-blooded animals.

Milk, "the great uncooked food," is the vehicle of transmission of other diseases, *e. g.,* the *Bacillus diphtheriæ,* which has been found in the ulcers and milk of cows and proliferating in the raw milk after it is drawn. Hundreds of epidemics of scarlet fever have been traced to the milk supply, infected by being exposed to the sick or convalescent, or through bottles from the sickroom not properly sterilized.

Anthrax, as hereinbefore stated, has been conveyed by both the milk and meat, and yet the masses fear more the milk of cows that have been vaccinated, although the latter is entirely safe; as to meat, the wonder is the infection is not more general. A wealthy town in South Louisiana has an open market, daily cleaned by a flock of buzzards, whose beaks and feet laden with microbian filth convey the *Bacillus anthracis* to the cleaver's block.

Malta Fever has been traced to the milk of goats infected with the *Micrococcus melitensis* (Bruce), and so the list of milk-borne diseases could be extended, including cowpox, gastro-enteritis, milk sickness and the relation of the last to low, swampy areas, and the milk of cows suffering with puerperal sepsis, suppurative wounds or any condition likely to septically affect the milk supply, not to speak of typhoid fever and the many outbreaks traceable to the milk supply from cows drinking sewage-polluted water, or milked by typhoid convalescents, many of whom remain walking laboratories for the production of the *Bacillus typhosis,* or milk that has been received in cans washed in polluted water, or milk in which an infected fly has accidentally dropped, suffice it that milk from the time it leaves the cow until it reaches the consumer should be carefully guarded from infection, whether from diseased cows, or cows improperly housed or fed, or from cows in a tuberculous environment.

What a field for the philanthropy and labors of the veterinary sanitarian; as your profession first applied the tuberculin test to cattle, which is a reliable diagnostic in ninety-seven per cent. of cases when properly applied, and through the use of which we must in a measure be guided in eliminating tuberculosis from dairy herds, continue the good work and teach the multitude, for it is only through an enlightened public opinion that the sanitarian can hope to find that co-operation necessary to secure the enactment of sound sanitary laws covering the subject matter of this paper, and their execution when enacted. Every state should have an *Institute of Comparative Medicine,* whether it should be in connection with the state universities or the medical or veterinary colleges, or the Department of Agriculture, is not material, so the basic principle of the scheme is preserved—the education of the masses. In a city like New Orleans, whose geographical position entitles it to be the *entrepot* of the Mississippi Valley, Latin-American and Oriental trade, it should be in connection with a great veterinary school, the establishment of which would be more than self-supporting; first, by reason of its

proximity to Latin-America, from which source it could draw matriculants; second, because of semi-tropical conditions there, it would afford the exporting interests unrivaled opportunities of studying tropical diseases in horses, mules and horned cattle, and give a tremendous impetus to stock raising in the South. The Gulf littoral could supply the tropical world with a grade of medium sized, wiry mules, suitable for agricultural and war purposes and better able to stand continuous work and strain in the tropics than the Northern breeds, but the successful pursuit of this occupation is contingent on the knowledge to be obtained in a veterinary institute.

But the humanitarian overshadows the economic; the great question of the hour is, Shall we in the light of present knowledge, and ability to do so, limit the encroachment of that great white plague that annually cuts down, in our own country, and in the flower of life, one-fifth of a million of human souls, and many at an age of greatest productivity and usefulness, and consigns them to the scrap pile of oblivion? A part of the responsibility of prevention rests on your profession, hence the "important relation of the veterinarian to public health."

Fifty-eight cases of typhoid fever occurred from milk furnished to sixty-nine families from a dairy in which an attendant had typhoid. The attendant, though ill, milked the cows and attended his sick wife, who also had typhoid. The excrements were emptied in an open cesspool where millions of flies gathered. This is an instance in which Denver finds herself, and the veterinary fraternity earnestly hopes that the city will wake up and pass a law creating the office of dairy and milk inspector and when such law is enacted put a competent veterinarian in charge of it, not someone trained along other lines.

Recently a student of the Colorado Agricultural College was taken sick. A diagnosis of appendicitis was made and an operation recommended, which was undergone by the patient. At the operation there was found, instead of one vermiform appendix, three appendices, one in a normal state, one containing some earthy concretions, and a third containing much pus and in a sloughing condition.

THREE DISEASES OF ANIMALS WHICH HAVE RECENTLY ASSUMED IMPORTANCE TO THE STATE SANITARIAN.*

By John R. Mohler, Chief of Pathological Division, Bureau of Animal Industry. U. S. Dept. of Agriculture.

The three diseases to which I desire to call your attention to-day are infectious anemia (swamp fever), mycotic lymphangitis (pseudo-farcy), and chronic bacterial dysentery (Johne's disease). These diseases have recently been found to have a greater distribution in the United States than has heretofore been known, and they have therefore assumed importance to you as state sanitary officers, not only on account of their own individual character but also because of the great similarity which they bear to other more common infections with which they may be readily mistaken. A brief discussion of the more important features of each of these three diseases will be given below.

Infectious Anemia.

Infectious anemia, known also as swamp fever, American surra, malarial fever, and typhoid fever of horses, the unknown disease, no-name disease, plains paralysis, and pernicious anemia, has recently been the subject of much investigation, and the cause of the disease has now been definitely determined as an ultramicroscopic body which is capable of passing through the pores of the finest Pasteur filter, like the infection of foot and mouth disease, rinderpest, hog cholera and similar diseases. The disease is most prevalent in low-lying and badly-drained sections of the country, although it has been found in altitudes as high as 7,500 feet on the marshy pastures during wet seasons. Therefore proper drainage of infected pastures is indicated as a preventive. It is also more prevalent during wet years than in dry sea-

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sons. It usually makes its appearance in June, and increases in frequency until October, although the chronic cases may be seen in the winter, having been contracted during the warm season.

Cause.—It has been conclusively proven that infectious anemia is produced by an ultramicroscopic organism which is transmissible to horses, mules and asses by subcutaneous inoculation of blood serum. The virus which is present in the blood may be transmitted to a number of equines in a series of inoculations by injecting the whole blood, the defibrinated blood or the blood serum which has been passed through a fine Pasteur filter, thus eliminating all the visible forms of organismal life, including bacteria, trypanosoma, piraplasma, etc. This virus has also been found to be active in the carcass of an affected animal twenty-four (24) hours after death. Following the injection of the infectious principle there is a period of incubation which may extend from ten (10) days to one and one-half (1½) months, at the end of which time the onset of the disease is manifested by a rise of temperature. If uncomplicated the infection runs a chronic course, terminating in death in from two (2) months to one and one-half (1½) years, or even longer. The probability of the virus being spread by an intermediate host such as flies, mosquitoes, internal parasites, etc., is now receiving careful consideration. From experiments already conducted it appears that this disease, formerly supposed to be confined to Manitoba and Minnesota, is more or less prevalent in Kansas, Nebraska, Colorado, Wyoming, Montana, North Dakota and Texas.

Symptoms.—Swamp fever is characterized by a progressive, pernicious anemia, remittent fever, polyuria and gradual emaciation in spite of a voracious appetite. The disease begins to manifest itself by a dull, listless appearance, and by general weakness, the animal tiring very easily. This stage is followed closely by a staggering, swaying, uncertain gait, the hind limbs being mostly affected. There is also noted a weakness and tenderness in the region of the loins, and at the same time the pulse increases in rapidity and may run as high as seventy (70), though

weak, stringy and intermittent. The temperature may rise to one hundred and three (103) degrees or higher, remaining high for several days, and then dropping, to rise again at irregular intervals. Towards the end of the disease, the temperature occasionally remains persistently high. The horse may improve for a time, but usually this temporary improvement is followed by a more severe attack than the first. Venous regurgitation is sometimes noticed in the jugular before death. The quantity of urine passed is enormous in some cases. Death finally occurs from exhaustion or syncope.

The blood shows a gradual but marked diminution of red corpuscles, the count running as low as two million corpuscles per cubic millimeter, the normal count being seven million per cubic millimeter. If the blood is drawn from such an animal, the resulting red clot with be about one-fifth (1/5) of the amount drawn. Occasionally a slow dripping of blood-tinged serum from the nostrils is observed as a result of this very thin blood oozing from the mucous membranes. Petechia are sometimes noticed on the membrana nictitans and conjunctiva, and paleness of the visible mucous membranes is usually in evidence, although they may have a yellow or mahogany tinge. Often a fluctuating, pendulous swelling may appear on the lower lip, point of elbow, sheath, legs, under the belly, on some other pendant portion, especially late in the disease, which is indicative of poor circulation, thinning of the blood and consequent loss of capillary action.

Lesions.—After death the carcass is found to be very emaciated and anemic, the visible mucosai being very pale. This marked absence of adipose tissue makes skinning a difficult task. Subcutaneous and intermuscular edema and hemorrhages are frequently observed, although it is remarkable in many cases to see how few macroscopic lesions may be present. The predominating and most constant lesion is probably the petechia so often observed in the muscle or on the serous membranes of the heart. The heart is generally enlarged and may be the only organ to

show evidence of disease. In other cases the lungs may be studded with petechiæ, with a serous exudate present in the thoracic cavity. The pericardial sac, in addition to the petechiæ already noted, generally contains an increased amount of fluid. The abdominal cavity may show a hemorrhagic condition of the intestines and peritonitis which probably results from overfeeding in consequence of the ravenous appetite present. The liver sometimes presents a few areas of degeneration although usually normal. Spleen is at times found to be enlarged and covered with petechiæ. Kidneys may appear normal or anemic and flaccid, but microscopically they usually show a chronic parenchymatous degeneration. Lymph glands may be enlarged and hemorrhagic.

Diagnosis.—The diagnosis of the disease is not difficult, especially in advanced stages. The insidious onset, remittent fever, progressive emaciation and anemia, unimpaired or ravenous appetite, staggering gait and polyuria are a train of symptoms which make the disease sufficiently characteristic to differentiate it from other diseases affecting horses in this country. The peculiar relapsing type of fever is sufficient to differentiate it from the anemias produced by internal parasites, while it may be readily separated from surra by the non-susceptibility of cattle and the great ease with which the trypanosoma may be found in the latter affection.

Prognosis.—The prognosis of the disease is very unfavorable. Veterinarians in different sections of the country where the disease is prevalent claim a mortality of seventy-five per cent. (75%) or even higher. Recovery only takes place when treatment is begun early, or when the animal has a long convalescent period.

Treatment.—The treatment of the disease has so far been far from satisfactory. The iodide, permanganate and carbonate of potash have been used. Arsenic, axytol, quinine and silver preparations have been suggested, but all have been without uniform success. Intestinal antiseptics have been resorted to and the results are encouraging but not altogether satisfactory.

Symptomatic treatment seems to be the most dependable. For instance, Dr. Davison, of this Bureau, was able to reduce greatly the mortality from this affection by giving an antipyretic of forty (40) grains of quinine, two (2) drams of acetanilid and thirty (30) grains of powdered nux vomica four times daily. In the late stages with weak heart action, alcohol should be substituted for acetanilid. Cold water sponge baths may be given, and in addition frequent copious injections of cold water per rectum, which has a beneficial effect in reducing the temperature and likewise in stimulating peristalsis of the bowels, which, as a result of the disease, show a tendency to become torpid during the fever. Avoid giving purgatives unless absolutely necessary, on account of their debilitating effect, but instead give laxative, easily digestible foods. Not infrequently a dirty, yellowish tinge of the visible mucous membranes has been observed, in which cases twenty (20) grains of calomel in from two to four (2 to 4) drams of aloes in a ball of two-dram (2) doses of fluid extract of podophyllin may be given. Following the subsidence of the fever a tonic was administered, composed of iron, quinine, nux vomica and gentian, in combination.

Mycotic Lymphangitis.

Epizootic lymphangitis, pseudo-farcy or Japanese farcy is a chronic contagious disease, particularly of equines, caused by a specific organism, the *Saccharomyces farciminosis,* and characterized by a suppurative inflammation of the subcutaneous lymph vessels and the neighboring lymph glands. Owing to the fact that this affection does not spread as an epizootic, and that its causal factor is an yeast-like fungus, the name mycotic instead of epizootic lymphangitis is suggested. This disease was first described by Italian and French veterinarians, and the specific organism was discovered by Rivolta in 1873. The presence of the disease in the United States was first observed by Pearson in Pennsylvania in 1907, although it is probable that it has existed in various parts of this country for many years. More recently its presence was definitely established in Ohio, Iowa,

California and North Dakota, and there is a probability of its existence in Indiana and several Western states. The disease is also present in the Philippine Islands, Hawaiian Islands and Porto Rico.

Bacteriology.—The *Saccharomyces farciminosis* form slightly ovoid bodies 3-5 microns long and 2.4-3.6 microns broad, which are somewhat pointed towards the poles and have a sharp double contour. They have more or less of a homogeneous content and grow by budding. This characteristic can be especially well observed in old growths on culture media. Their staining with the ordinary stains is quite unsatisfactory; however, they may be readily recognized in fresh smear preparations or in the hanging drop of a small quantity of the suspected pus, where the above described bodies can be distinctly noticed.

A satisfactory method of staining the organism is the Claudius method, which is as follows:

1. Stain with 1 per cent. aqueous solution of methyl violet for 2 minutes.
2. Wash.
3. Place in a half-saturated solution of picric acid for one-half minute.
4. Decolorize with chloroform or clove oil.
5. Treat with xylol.
6. Mount in Canada balsam.

The organisms grow very slowly in the various culture media; it requires about ten days before vegetation is noticed on agar in the form of grayish-white granules which gradually grow to larger colonies, appearing considerably elevated and having a wrinkled surface. It also grows in bouillon in which a white flaky deposit makes its appearance after fifteen or eighteen days. In taking cultures it is advisable to open a fluctuating abscess over which the skin should be shaved and well cleaned with bichloride solution and alcohol. The abscess should be opened with a sterilized scalpel and culture media may then be inoculated in the usual way. In case of a mixed infection, the organism may be isolated by plating.

The period of incubation varies greatly; it extends from three weeks to four months or even longer. In artificial inoculations with pus through wounds in the skin, inflammation and swelling of the lymph vessels may be noticed in twenty to sixty days, which show in their course a development of hard nodules from which abscesses form.

The natural infection is without a doubt caused through superficial wounds such as galls, barbed wire cuts, or through various stable utensils, harness, bandages, insects, etc. Solipeds are mostly susceptible but cattle may also be infected.

Symptoms.—The inflammation of the lymph vessels is usually first observed in the extremities, especially one or both hind legs; it may also appear on the fore legs, shoulder or neck, more rarely on the rump, udder and scrotum. The lesions, as a rule, develop in the tissue adjacent to the place of inoculation. In the early stages of the disease the lymph vessels appear very hard and thickened, and along their course hard nodules develop, ranging in size from a pea to that of a hen's egg. Later these nodules soften, burst spontaneously and discharge a thick yellowish pus. The surface of the resulting ulcers or abscess cavities soon fill up with exuberant granulations which protrude beyond the surface of the skin, giving a fungoid appearance. The affected extremities are considerably enlarged, similar to cases of simple lymphangitis. In rare cases the mucous membrane of the nostrils may also become affected, showing yellowish flat elevations and ulcerations, and these may extend by metastasis to internal organs. In cases where the mucous membrane is affected the submaxillary lymph gland may also become enlarged and suppurate. The constitutional symptoms accompanying this disease are not often marked or may be absent. There is usually only a very slight fever observed which seldom runs over 102° F. The appetite is not impaired except in the advanced cases.

Lesions.—Of the anatomical changes the skin and the subcutaneous tissue show the most marked lesions. They may become 2/3-inch thick and indurated as the result of fibrous tissue

formation due to the inflammation present. On the bacon-like cut surface suppurative areas and granulating sores may be noticed of various sizes; also enlarged lymph vessels filled with clotted lymph mixed with pus. The neighboring lymph glands are usually enlarged and frequently contain suppurating foci. Rarely the internal organs may show metastatic abscesses.

Diagnosis.—The diagnosis is based on the characteristic appearance of the ulcerations which show exuberant granulation of a bright red color, inverted edges and a thick, creamy glutinous discharge. These manifestations differentiate the disease from glanders in which the ulcers are crater-like, do not contain exuberant granulations and the discharge is of a viscous, oily character. The submaxillary and other lymph nodes, as well as the corded lymphatics in glanders, are more firmly attached to the adjacent tissues, and are therefore less movable. In some chronic cases of mycotic lymphangitis, however, the lesions may closely resemble those of farcy, and in these cases the microscopical examination of the pus will disclose the nature of the affection. In the pus the saccharomyces can be easily seen in the unstained specimen and is recognized by its size, shape and highly refractory double outline.

Treatment.—Treatment consists at the onset of the disease in entire extirpation of the nodules, lymph vessels and neighboring lymph glands in case the lesions are localized. In cases where the nodules formed abscesses their opening is recommended, followed by the application of the actual cautery or a 1-250 solution of bichloride of mercury. It must be borne in mind that the organism is highly resistant to almost every antiseptic and the best results will be obtained from the application of a solution of a strong antiseptic following the opening of the lesions.

In the most favorable cases recovery results in from five to seven weeks; as a rule, however, it requires several months.

Prophylaxis.—In order to prevent the spreading of the disease the affected animals should be isolated, the products of the disease should be destroyed, and the stable should be disinfected

with very strong liquid disinfectants in consideration of the great resistance of the causative organism.

Chronic Bacterial Dysentery.

Chronic bacterial dysentery is a chronic infectious disease of bovines caused by an acid-fast bacillus simulating the tubercle bacillus, and characterized by marked diarrhea, anemia and emaciation, terminating in death.

Recently the disease has been observed in the United States for the first time by Pearson in Pennsylvania cattle and later by Beebe in Minnesota and Mohler in Virginia cattle, and in an imported heifer from the Island of Jersey, at the Athenia Quarantine Station of the Bureau of Animal Industry.

The former has proposed the name chronic bacterial dysentery for this affection and it has also been termed Johne's disease, chronic bacterial enteritis, chronic hypertrophic enteritis and chronic bovine pseudo-tuberculosis enteritis by various European investigators. The disease was first studied in 1895 by Johne and Frothingham in Dresden, but they were inclined to attribute the cause of the peculiar lesions of enteritis which they observed to the avian tubercle bacillus. In 1904, Markus reported this disease in Holland, and subsequently it was observed in Belgium, Switzerland, Denmark and Great Britain.

Cause.—The bacillus, which has been invariably demonstrated in the intestinal lesions and mesenteric lymph glands in this disease, is a rod about 2 to 3 microns long and 0.5 micron wide. It stains more or less irregularly like the tubercle bacillus and, moreover, the similarity goes further in that the organism is also strongly acid-fast, which fact led Johne and Frothingham to surmise that the disease was caused by avian tubercle bacilli. However, it has now been plainly demonstrated that the bacillus of chronic bacterial dysentery is readily distinguished from the latter organisms, for while it resembles the tubercle bacillus in form and staining qualities, no one has succeeded in growing it in culture media or in reproducing the disease by injecting experiment animals.

Symptoms.—Probably the first symptom noticed is that the animal is losing condition despite the fact that its appetite is good and the food nourishing. This is soon followed by a diarrhea which, while moderate at first, soon becomes excessive and may be either irregular or persistent, the feces being of the consistency of molasses and passed frequently. In the meantime the hair becomes dry and harsh and the animal falls off considerably in weight. The temperature, however, remains about normal. The appetite does not seem to be greatly impaired until the last few weeks of life, but nevertheless emaciation continues, the animal becomes more and more anemic, great muscular weakness and exhaustion are manifested and death follows, apparently as the result of the persistent diarrhea and great emaciation. The disease may continue for four or five weeks or may last for a year or even longer before death intervenes.

Lesions.—The lesions observed in post mortem are remarkably slight and out of all proportion to the severity of the symptoms manifested. The disease appears to start in the small intestines, especially in the lower portion where the lesions are usually the most marked, but it also involves the large intestines, including the rectum. The mucous membrane may alone be affected, although usually in the long-standing cases the submucosa is also invaded and the entire intestinal wall is then much thicker than normal and the tissue infiltrated with an inflammatory exudate. The mucous membrane or inside lining membrane is markedly wrinkled or corrugated, showing large coarse folds with more or less reddening or hemorrhagic patches or spots on the summits of the ridges, especially noticeable in the large intestines. The mesenteric lymph glands are usually somewhat enlarged and appear watery on section. The other organs do not appear to be affected except from the anemia present in the latter stages of the disease.

Differential Diagnosis.—The principal disease with which bacterial dysentery may be confused is tuberculosis, but the application of the tuberculin test will readily diagnose the latter

disease while no reaction will be noted in case the injected animal is suffering with only the former affection. The disease may also be mistaken for the parasitic affections resulting from stomach worms (verminous gastritis) and intestinal parasites, especially uncinariasis, but a microscopic examination of the feces is necessary in order to establish definitely the diagnosis.

TREATMENT.—As with all other forms of infectious disease, it is advisable to separate immediately the diseased and suspected cattle from the healthy animals. The feces passed by the former animals should be placed on cultivated soil where healthy cattle would not be exposed to them, as the bacilli producing the disease are readily found in such manure. The stalls, stables and barnyards should also be thoroughly disinfected, special attention being given to those places which have been soiled by feces. The administration of medicines has thus far been quite unsatisfactory, although treatment should be directed toward disinfecting the intestines with intestinal antiseptics, such as creolin in two teaspoonful doses given twice daily, hypodermically. Salol, turpentine, or subnitrate of bismuth in a starch or wheat flour gruel may also give temporary relief, but the diarrhea is likely to reappear and cause the death of the animal. In all cases the food must be carefully selected to assure good quality, and should consist preferably of nutritious dry feed.

VAIN RECRIMINATION.—"Calling names don't make any real difference," said the conservative campaigner. "No," answered the scientist. "If it did those Latin titles we have bestowed on germs would have discouraged them long ago."—(*Washington Star.*)

OWNERS of dairy cattle, in the State of New York, who purpose to have their herds freed from tuberculosis and to keep said herds free from the disease, may, under the amended agricultural law, obtain state aid by complying with conditions prescribed by Commissioner of Agriculture, Raymond A. Pearson. Applications for examination for tuberculosis should be made on official blanks supplied by the Department of Agriculture.

DAIRY INSPECTION*.

By W. G. Hollingworth, D.V.S., Utica, N. Y.

There is no subject of greater importance to the veterinarian, especially one who has the benefit of a rural practice, than dairy inspection.

Why? Because the whole community subsists on products of the dairy during the most critical period of their physical existence, and the health of the community depends largely upon the healthful condition of our dairies and the cleanliness of the products produced from such; and by competent inspection the death rate, especially among children, which is largely caused by polluted milk, either caused by neglect of the producer or the consumer, would be greatly lessened. I mentioned competent inspection. How are we going to have this come about? Only by protecting the young graduate from the illegal practitioners that are scattered so thickly among us. They are thriving on what rightly belongs to the veterinarians who have fully complied with the laws. Now, if these laws are effective, why not make an example of some of them. If they are not, let us improve them.

These unqualified men are a menace to the dairymen. They may be handy in a case of dystokia; but take, for instance, a dairyman that has anthrax in his herd. It is their notion that the cause of death is due to a poisonous weed. They take no precaution. Why? Because they do not know how. The owner will ask, What am I to do with this carcass? Why, skin it and give to chickens or hogs; maybe the dogs come in for a meal. Some bury it. How often you see or hear of someone infected by skinning a cow. Get dead animals off the premises if possible; burn them; do not make a cemetery of the farm; thoroughly disinfect the place where the cadaver has lain.

*Read before the 19th annual meeting, N. Y. S. V. M. S., Utica, N. Y., September 3, 1908.

Now, in regard to sporadic diseases. Their panacea is to cut a hole in the skin of the tail; sew in a piece of salt pork; bore a hole in the horn and pour turpentine in it and a pound of sul. magnesia. Others give a piece of salt pork to make them chew their cud, etc.—It seems to me that we have enough to contend with without letting these fellows reap the harvest that rightly belongs to the others who are well worthy of proper recognition.

In the city we have the automobile which, with a certain class, has developed a sort of insanity, "Dementia Automobileania," which in time, with the reckless handling of the machines, more headstones and monuments, relief will come. In the country, we get the farm desertion, a very serious thing for the veterinarian and the state at large.

The sons and daughters are flocking to the cities seeking work and when they get it they are not any way near compensated as they would be on the farm. The trouble is the rising generation want to see more life and gaiety, notwithstanding the ruination of health that such living leads to.

The attraction on farms are many now to what they used to be. There is the rural delivery; many farmers get the morning papers as soon as their city friends, also their mail. There is the telephone; it is a rarity to go to a farmhouse and not see this instrument of gossip. There is the trolley roads that are constantly being built, much to the convenience of the farmer, along with the good roads movement. All these things, along with other ways of entertainment which can be advised, will lead to a way to check this "dementia rusticana" that is prevailing at present.

In regards to the good roads movement, the farmers must unite and see to it that the laws to check this horseless vehicle from ruining them be enforced, which they are doing by speeding so fast they suck up the top dressing and distribute it to the farm buildings and houses much to the detriment of cleanliness; in fact, the farmers have had to move their aeration

stands on account of this dust and dirt that comes in clouds from the roads caused by the excessive speed of the automobiles.

A campaign of education would greatly help to benefit the dairymen. Farming and dairying now and years ago are entirely different. We want more educated farmers. When we come across a farmer's son of intelligence that tries to learn, see to it that he is properly educated; have him attend an agricultural school; if money is lacking, there are philanthropic people that would lend the necessary funds; all they want is a personal note, and it would be a very ungrateful person that would not attend to this in due time. When he graduates, there will be plenty of openings awaiting him. He will set up a rivalry amongst the rest of the community where he is located; he will do things so differently and his ways will be copied.

Our institutions of education should devote more time to agriculture, especially the high schools in rural districts. Industrialism is an important problem; have the hand and brain work in unison; more time should be devoted to plant and animal life. Let them study languages, etc., that like, but it would be more credit for colleges to turn out more students of agriculture than bank clerks, school teachers, etc. He is a factor in his community who has improved the condition of some vegetable, or, by scientific breeding, has improved his dairy. It wants an active brain to do such things, and by education a foundation has been laid for the student to build a good substantial frame on, and by so doing you will keep them on the farms.

The farmers are not the only ones that need the education; the consumers of the dairy products need it also. Some do not seem to realize what the farmer means to the success of this great country. Just think, for a moment, what would befall us if the farmer should change his ideas of livelihood. Take the dairy for one thing. There are some that have gone out of the dairy business for various reasons. One is the scarcity of help, and another is the insufficient compensation for the products of the dairy. Some have gone into sheep raising; others

into hay and grain. Another is they find it impossible to comply with the regulations which they are required to live up to if they want to sell milk for city consumption. Here is where the veterinarian knows better than anyone else what the farmers can do and do it right. They, the veterinarian or the veterinary inspector, are the ones that should attend to these regulations rather than the health officials.

Our farms are not as productive as they were years ago. The fertility of the soil has been lost, due to constant vegetation and not enough replenishing. The productiveness of the soil is of great consequence to the dairyman. By constant fertilization, he can produce sufficient food to supply his stock during the season that they cannot help themselves.

A farmer does not lose when he grains his stock; the manure is of much more value by so doing, and the farmer, by not letting the refuse of the stable go to waste, greatly improves the richness of the soil. Now, instead of having to dispose of some of his stock, due to lack of sufficient fodder to winter them, he will have to increase his belongings. And here is a proposition for a dairyman: That is to raise stock from his best cows, and by so doing, he will have young stock to take the place of the ones to be discarded, and this is a very necessary thing for a dairyman to do. And another thing is to know which cows are paying their way. To do this is to number or name each and every milker in the herd and weigh the milk, and by so doing an accurate account can be kept.

To be able to furnish dairy products to a community that is rapidly growing is a proposition which the farmer must wake up to. He is a necessity; we cannot exist without him. There is no doubt that a successful farmer or dairyman is a most independent person. How many young men that have inherited fortunes could make themselves useful to a community by investing in a farm.

I have a friend that bought a farm that cost him twenty thousand dollars ($20,000) by the time he had it stocked, etc. Last year his gross receipts amounted to eight thousand dollars

($8,000), divided as follows: His dairy produced three thousand six hundred dollars ($3,600), his hogs two thousand three hundred and fifty dollars ($2,350), his sheep one thousand seven hundred and fifty dollars ($1,750), and other receipts enough to make the amount. His total expenditure was four thousand dollars ($4,000), making his net receipts four thousand dollars ($4,000) on the investment. Now, where could this man invest this amount and get such returns?

It is a matter of much importance that our veterinary schools should see to it that they pay more attention to milk and meat inspection. Our boards of health would seek their advice in regard to such duties, and it would create a source of revenue for the qualified veterinarian, just as our neighboring State of Pennsylvania has done by passing a state meat inspection law.

The veterinarian, and especially the rural practitioner, should be the one to encourage this dairy inspection, and that is what the country districts lack, is rural practitioners. The cities are caring for themselves. Many cows die just because the cost of getting a city veterinarian would be too great, and so the unqualified man is called in, much to the regret of the intelligent farmer.

To make dairy inspection a success, we must have laws to back it up, and at present there is a man at the head of the agricultural committee, a Mr. Boshart, a very large farm owner and business man and a thorough believer in the veterinarian, that is working on this line. The object of such legislation would be to better the products of the dairy farms and also benefit the producer in turn, and by so doing and with the help of the Agricultural Department stamp out the fraudulent conditions existing in some districts.

A few words about the frauds that are going that the consumer has to pay for and the dairyman gets the blame unjustly. There are in this state five hundred and ninety-one (591) milk-gathering stations situated in different parts of the state; they purchase milk from the producer and reship it for consumption; the fraud consists in skimming milk and selling

it for whole milk. The procedure of this adulteration is as follows: They put thirty-six (36) quarts or a little less of whole milk in forty (40) quart cans; then they fill this up with milk that has been skimmed, and this is shipped to New York as whole milk. The Department of Agriculture estimates that 10 per cent. of the milk of some districts shipped to the cities is skimmed in this manner. Now, the amount that the consumer is cheated out of will figure, no doubt, into the millions. The fraudulent dealers make a good thing, as they sell the cream for six dollars ($6.00) or eight dollars ($8.00) a can, which is clear profit for them if they are not caught.

Naturally, pure milk rather than artificially purified milk is what we expect to produce under competent dairy inspection, and to accomplish this with the limited experience I have had in this line I have adopted a few rules to be governed by:

1. Is to see to it that the buildings and surroundings are in as hygienic condition as possible.
2. Proper care in feeding.
3. Healthful condition of herd.
4. Healthful condition of help.
5. Cleanliness of stables and cows.
6. Certain requirements about milking.
7. Proper care of milk immediately after milking.
8. Proper straining and cooling.
9. Proper care of utensils.
10. Proper conveyance of milk.
11. Agreement signed by producer and dealer.

Rule 1. Barns should have all the light that is possible and good ventilation; if possible, have it situated on high ground; a cement floor is the best; surroundings must be clean; do not have manure pile just outside of the door so the cows have to walk through it coming and going; it brings unnecessary filth to the stable and smears the appendages which greatly interferes with the milking, that is, as to cleanliness.

Rule 2. In regard to proper care of feeding, if you expect to get milk you must feed; the quantity of milk depends on it;

it is better not to give dry rations just before milking on account of the dust that naturally rises; if the dairyman insists, a moist food can be given; better not give food that might produce a taste or odor too near milking time as it might be noticeable in the milk; do not let silage remain about the stable, as the odor of it might be absorbed by the warm milk, if the milk is not taken out of the stable immediately after milking.

Rule 4. The healthful condition of the help is very necessary; no sickly person should assume care of stock; in case of a contagious or infectious disease on the premises radical measures should be adopted, and so it may be in regard to convalescent stages; take typhoid, where the fæces are infected for months after; some of the discharges might in some way pollute the water and in due time might infect the milk, and by so doing an outbreak of typhoid might result; there is diphtheria and scarlet fever also.

The physicians in charge of rural patients should be compelled to see to it that strict measures are carried out in this line. Notify the dairy inspector, if there is one in the locality, and he in turn will govern himself accordingly. What would give a veterinary inspector more pride than to assume charge of an investigation of an outbreak of some contagious disease supposed to be due to milk pollution? That would be the case if veterinary inspection were established. The boards of health would find it necessary to call upon us.

The rule as to milking—the words "be clean"—are necessary to be taken into consideration:

Care of the milk after milking. As soon as the milker is through with a cow, he should remove the milk from the stable to a proper receiving place where the animal heat can be removed. The aeration of milk is a very necessary thing to do. It removes the gases and helps to remove the odor, but the stands must be located in a proper place, not along the roadside where it will collect the dust, etc., from them. The necessity of keeping milk at a low temperature, about 45 to 50 degrees F., as this checks bacterial growth.

Care of the utensils. There has been a law passed which makes this compulsory. I am of the opinion that the women are the ones to see to it that the utensils are kept clean. The woman is a very necessary adjunct to the dairy farm; she is naturally more cleanly and observing about such things, but she must not be made a drudge of. Give her a varied life. By so doing, a great many more would be contented to remain on the farms and get married to some farmer's son, and they, in turn, start a life of industrialism on a scale within their means.

Conveyance of milk. It is a common thing to see a farmer carrying garbage and milk cans and possibly manure in the same wagon box; also milk exposed to the sun's rays and possibly has to be carried a long distance; this should be abandoned.

Healthful condition of herd. Of these rules the one that gives me the most anxiety is the one pertaining to the healthful condition of the herd and I am in a quandary to know what is going to be done to eliminate the diseased animals, the one most especially is tuberculosis, which is rapidly gaining headway in this state among our dairy herds. In 1897 I tested herds that supplied milk to my city by order of the Board of Health and I found about 7 per cent. Now, within a year or two I have tested some herds in the same locality and found 60 per cent. That may have just happened so, but it scares me to think of it, and I see no reason why other parts of the state should be different, with the lax condition of affairs as they exist at the present time. Very often I am asked to test a herd. I am only too willing to act if I have an opportunity of holding a post-mortem examination on the reactors. Few comply with my request, but the large majority want to rid the dairies or herds of this disease, only to dispose of the reactors to some innocent person. Now, this is the way that the disease is spreading. There is another serious proposition and that is over-testing, so to speak. Some dealers just previous to sale, knowing that the prospective purchaser requires cows that will not react, will get tuberculin and inject them. They do not care whether they have a reactor or not. They have found out that a recent re-

actor may not react a second time within a period of a few days. I always advise a purchaser that he had better retest in three months if he is anxious to have a healthy herd.

The use of milk from the herd should be discontinued if any diseases should break out that is affecting any number of them. The use of milk from any cow should be discontinued while she may be suffering with any febrile malady. It is quite proper not to use milk from a cow that has just freshened, or one that the afterbirth is retained, or one that is nearing the period of gestation. The quantity she gives is of no consequence and should not be mixed with the milk for human consumption. To have these requirements lived up to a great deal depends on the dairyman, whether he is a conscientious person, or dishonest, or careless, or ignorant. Whatever may be the cause the way to rectify it is to have the herd or herds under veterinary inspection, and I have every reason to think that a great deal of diplomacy can be used in such cases. Because we are trying to carry out dairy inspection there is no reason why we should get the enmity of the dairymen.

Animals indisposed should be taken from the herd and proper care given them according to the nature of the case. There is another sad state of affairs: that is the falsified tests. I have every reason to believe that such are given out, and I am very sorry to think that one of our profession would belittle himself for a mere sum to lend his signature for such purposes. He cannot have the interest of the dairy at heart, or his profession, especially if he looks ahead and thinks what the consequences might be, as the healthful condition of the community depends much on reliable dairy inspection.

The procedure of handling of tuberculosis by the Department of Agriculture, I think, could be improved, in regard to compensation especially. It does not seem right to keep the dairyman the length of time without his check for the condemned animals, if the state has the funds; if they haven't, then they should go slow. I can call to mind one herd that the state

officials tested early in the spring and as yet this dairyman has received no compensation.

I think the post-mortems should be held in the neighboring vicinity so the results of such could be witnessed by the owner and neighbors as well as medical men, many of whom have never seen a case of bovine tuberculosis. Their indorsement would go a great ways. When they are shipped away it makes the farmer suspicious as to the findings. Of course, the owner has the privilege of going to see the same, but there is an extra expense for him.

Many farmers are not advocates of the tuberculin test, but if you can demonstrate to them, before their eyes, what the test has done it will be a great help to us in regard to inspection. The health departments of our cities are asking for a better quality of milk. They are not partial to pasteurization but ask for clean milk from healthy cows. This is of as much consequence as pure water, and some means must and will be advanced to bring this about. Stamping out would be expensive and next to impossible. The Bang system would not be popular. Perhaps the time will come when we can immunize the young stock as successfuslly as is being advocated.

As our population increases, so the demand for our dairy products will increase also. Take New York city. The demand for milk increases at the rate of seventy-five thousand (75,000) quarts yearly, and other cities in proportion. A milk famine will be the result if some plans are not advanced to encourage the dairyman to continue this very necessary occupation, and make it an investment rather than a side issue. Dairy inspection would greatly help the farmer, as the inspector would see to it that the dealer lives up to his contract as well as the producer. There are some dealers that want the best end of the deal.

It was only a few days ago that I saw a notice in the papers where the Department of Agriculture seized forty carloads of dirty cans that were going to be shipped back to the producer. These cans must be thoroughly cleaned immediately upon empty-

ing. By proper inspection such cans as these would be watched and attended to.

In regard to certified dairies, there is no doubt that these are blessings to a community. They have been brought about by dairy inspection and we must encourage them, as one in a locality has wonderful influence upon neighboring farms. They have to get better prices for their products on account of the extra cost of producing them, but there is a ready market for such.

There is one thing that the veterinary inspector should see to and that is to have the public have confidence in his judgment, so when they see his signature affixed to circulars of certified products they can depend on it. A man's reputation or character in a position of trust is worth more than gold.

A RECENT number of *The Breeders' Gazette* contains an excelent portrait of Dr. Wm. F. Pflaeging, State Veterinarian of Wyoming.

The next meeting of the New York State Dairymen's Association, to be held in Utica, December 8 to 11, will be devoted almost entirely to the consideration of bovine tuberculosis.

"THE REVIEW is a very welcome monthly visitor." So says Horace B. F. Jervis, V.S., of Houlton, Maine, in sending his check for the renewal of his subscription. Dr. Jervis has just returned home from a European trip.

A CAREFUL DAIRYMAN.—"There," said the honest dairyman, as he put a gallon of water into his two-gallon milk can. "No one shall say that my milk is not clean. If that don't wash it, I don't know what will, unless I put in a little soap."—(*Harper's Weekly.*)

IT was a veterinarian, in the person of the newly-elected secretary of the New York State Veterinary Medical Society, John F. De Vine, D.V.S., of Goshen, N. Y., who made the report of the proceedings of the recent International Congress on Tuberculosis to the Medical Society of Orange County, N. Y., on the occasion of its recent quarterly meeting held at Port Jervis, October 20, 1908.

THE USE OF TUBERCULIN IN CONTROLLING TUBERCULOSIS IN HERDS.

By C. J. Marshall, V. M. D., University of Pennsylvania, Philadelphia, Pa.

Read at the International Congress on Tuberculosis, Washington, D. C., 1908.

There is an increasing desire on the part of breeders and dairymen to get and to maintain herds free from tuberculosis. Consumers, physicians and veterinarians are also interested in this subject. By good luck or good management many herds have never been infected with tuberculosis. Even more care and better judgment may have been exercised in guarding herds that have become infected.

Tuberculosis may be detected in the advanced stages by a physical examination. The physical diagnosis depends upon the stage to which the disease has progressed, its location and the cleverness of the observer. No pathognomonic symptoms are known by which the disease can be diagnosed in its incipiency and there is no case recorded of a herd that has been infected with the disease and made free from it where the diagnosis has depended on a physical examination alone.

Ability to recognize the physical symptoms is an absolutely necessary qualification of the veterinarian, but by this means alone we have never been able to detect all cases and we may never hope to do so. In tuberculin we have an agent that will show the disease in all cases to within a very small percentage. Tuberculin has been used and its action has been critically studied for the past eighteen years. We have yet to find one case where tuberculin has injured or has produced any ill effects in a healthy animal, when properly used. There is no doubt, in the minds of those who have studied it most critically and used it most extensively, of its reliability and harmlessness. It has been criticised for its abuse, not its use.

Tuberculin is but one link in the chain that is used to eliminate tuberculosis from a herd. When its judicious use is combined with the necessary isolation of reacting animals, thorough disinfection, ventilation and proper sanitation, its value cannot be gainsaid. We have a very large number of examples to show what it will do in controlling tuberculosis when accompanied by other measures for its suppression.

Seeing is believing with many people, and too many cannot understand that a disease exists till they can see its external effects or experience losses from it. Unfortunately, in the case of this disease, much of the damage has been done before there is ocular evidence of its presence.

The true cause of tuberculosis of cattle is no more a mystery; its presence can be detected at an early stage. Its contagious nature has been established beyond all doubt. The disease can be caused in no other way than by the tubercle bacillus and this germ does not multiply outside of the animal body, although it may retain its life and virulence for a long time. Agents for destroying the tubercle bacillus outside of the animal body are well known and can be applied practically. For these reasons the task of eliminating it is not impossible. It is, however, difficult in some cases.

We realize, more and more, that tuberculin is a safe, reliable test when honestly and intelligently used. There is no doubt but that its use should be restricted to those who are competent and skilled in its use, as well as in the disease of animals, who possess good judgment and are as truthful as tuberculin is itself. There is no better means for defeating the value of this test than to allow it to become an household remedy. Any intelligent person can soon learn to use a hypodermic needle and a thermometer. There are other things about the tuberculin test that are more complicated and at times men the most skilled in its use are put to their wit's end to know how to handle peculiar questions that arise in connection with this subject. It would be as easy, and far safer for the community, to try to teach the average farmer to be his own blacksmith, wagon

builder, lawyer, physician, etc., as to instruct him to do his own testing for tuberculosis. We need more persons who are skilled in the use of tuberculin and in the control of diseases of animals in general. The states or governments should spare no effort in training men as thoroughly for this work as the importance of the subject requires.

The time may not be ripe for legislation to attempt the compulsory eradication of tuberculosis from all herds, but many individuals have discovered that the disease can be controlled and that it is more economical to do this than to let it run its natural course. The state should at least furnish such men the necessary assistance. With our better class of breeders and dairymen this idea is spreading. The demand for meat and milk from tuberculosis-free herds is helping to bring about this desirable condition of affairs. Medical milk commissions require a tuberculin test once yearly, at least. There is no other known means of ascertaining whether a herd is free from tuberculosis.

The transmissibility of the disease from animals to man is an important question, but it is certain that this disease is transmitted from animal to animal, and those interested in dairy cattle cannot afford to allow it to run unchecked in a herd.

It will be a difficult matter to convince the masses of the fully established harmlessness and the usefulness of tuberculin so long as some agricultural and daily papers continue to malign its use. It is hoped that these agencies will soon see the facts in their true light and recommend the truthfulness and good qualities of tuberculin rather than continually to condemn it and to herald the mistakes and blunders that are made by those who are incompetent to use it.

Even those most enthusiastic in the campaign against bovine tuberculosis do not recommend the immediate slaughter of all animals that react to the test. No country, perhaps, could afford such extravagance. There is no doubt but that a majority of the animals that fail to pass this test have a monetary value. The sooner public opinion is educated to this fact, and that the products of such animals can be handled in such a way that their

safety can be assured, the sooner will ways be devised to use them profitably, and thereby encourage the cutting off of the main sources of infection.

A sufficient amount of knowledge has already been accumulated in reference to this disease to eliminate it from our herds in a few years if all parties concerned were in possession of the already known facts, and could and would make the necessary effort and sacrifice to apply them. The first necessary requisite would be a thorough knowledge of the disease on the part of the owner and his willingness to accept and follow the known facts in reference to handling it. No person should undertake this task unless he is willing and able to follow every requirement faithfully. Testing the herd once and cleaning the stable of all known sources of infection is a good beginning, but these measures must be followed year after year till the task is completed. This is especially true in herds where cows are constantly being added from the open market.

It has been found by experience that some cows will pass a satisfactory test at the time of purchase and react to a subsequent test in two months or less. This may be due to one of several conditions. First of all, the test may have been made carelessly or dishonestly, or the animal may have been in the incubative stage of the disease at the time of purchase and therefore fail to react. It is known that there is a period of incubation for tuberculosis of from one to three weeks. It is also known that animals will not react to a test during this period. Another possible cause for a reaction soon after purchase is the fact that the stable may not have been disinfected before the new members were added to the herd and thus they may have contracted the disease in their new quarters. Some animals have a much higher resisting power to this disease than others; this is especially noticeable in the new members of a herd.

It has been demonstrated that it is not safe to put newly purchased cows with the old members of a herd till they have first successfully passed a retest. This can be applied two or three months from the time of the original test and a double

dose of tuberculin should be used. Cows from tuberculous herds may develop the disease in the future, even though they be removed to a sanitary stable after having passed a satisfactory test. For this reason it is not advisable to purchase cows from herds that are known to be highly tuberculous, even though they pass the test successfully. The lesion of disease may become dormant for a time and the diseased area encapsulated but later it may break down, when the proper conditions are supplied.

In large dairy herds where cows are being added to take the place of undesirable ones, it is a difficult matter to keep the disease out entirely. It can be kept within bounds, and in a form that will seldom show itself physically. The chances are very great that the herd has tuberculosis where the tuberculin test is used only at the time of purchase.

In cases where many reactions are found at the time of test, a retest should be made in not more than six months. If the percentage of reactions is not more than from two to five, and the sanitary conditions are good, the retest can safely be left for a year. In large herds the test should be made at least once a year, even though it has previously passed with no reactions.

The records show hundreds of cows that have been tested at least once each year and sometimes twice, for several years, and are still breeding regularly giving a full and profitable amount of milk and are in perfect health, so far as can be determined by any known method. It is a question as to whether a cow that reacts once to the test should ever be considered free from tuberculosis even though it may appear healthy and, later, pass the tuberculin test.

Some of the most common errors made with tuberculin are due to carelessness or dishonesty. The test may be applied when the animals are in no condition for it. This is especially true in cows offered for sale by dealers. Such animals may be heavy springers fatigued and overheated by being driven from ten to twenty miles in the heat of the sun and then kept in a strange stable with no water, or an inadequate amount. The weather may be excessively hot and the stable badly ventilated,

or an animal may be of a nervous temperament and become unduly excited. Dealers are often anxious to get the animals through the test early in the day so that they can be shipped or sold and for this reason the temperature readings are sometimes not carried on long enough after the injection to show the reaction that might take place. The animal may have been injected with tuberculin before an honest test is applied. It happens occasionally that an animal will not react on successive tests where the intervals are less than two months. The test should never be applied unless the animals are quiet, contented and undisturbed.

In applying the test it is necessary to establish a normal temperature before making the injection. This can usually be done by two preliminary temperatures. The test may not prove satisfactory if the initial temperature is above 103° F. In cases of a high initial temperature, if the temperature is not above normal the next morning the animal is usually considered to be free from the disease. Where the temperature is high at the beginning and remains so it cannot be decided whether the high temperature is a continuation of the pre-existing fever or is a reaction to tuberculin. It is best, by all means, to start with a normal initial temperature.

A temperature measurement should be taken not later than ten hours after injection—eight hours is preferable, and in cases of retest it should be earlier than eight hours. The last temperature should be taken not earlier than the sixteenth hour but it must be followed longer if there is any upward tendency and a reaction is not already established.

The point at which a reaction is considered positive is a relative quantity. A temperature that rises gradually from the eighth to the sixteenth hour from 102 to 104 or above, under ordinary conditions, can be considered a positive reaction. In well marked reactions the temperature may rise to 107 or higher. This is more liable to occur in cases of recent infection or where the disease has not become generalized.

In advanced cases of tuberculosis or where the disease is suspected from a physical examination, a rise of one degree should be interpreted as a reaction. In herds where a large number of reactions have been obtained the line may be drawn more closely on doubtful cases. Animals that show a questionable rise in temperature at the time of test should be isolated and retested in about two months. In this case a larger dose of tuberculin should be used. It may be advisable to use three or four doses at one time.

During the time of testing the herd should be fed, watered, milked and stabled as usual. Water can safely be given soon after a temperature has been taken but it should not be allowed freely just before a temperature measurement. In stables where there is a constant water supply, there is no danger of the animals taking enough to interfere with the temperature. Tests in hot, muggy weather may not be satisfactory. So far as possible it should be arranged to do the testing in the cooler parts of the season.

Advanced stages of pregnancy seem to make little if any difference with the test. Many successful tests have been made during the day of parturition.

The utmost care should be exercised in sterilizing thermometers, needles, syringes, hands, clothing, etc., before and during the time of making a test. Contagious abortion, tuberculosis and other contagious diseases may be carried from animal to animal or from herd to herd if this precaution is not taken.

For those who are in sympathy with the work, the plan for handling tuberculosis is somewhat as follows: In herds where no animals are purchased, or but few, the tuberculin test is applied, the reacting animals are isolated and the stable disinfected. If a large percentage of the herd fails to pass the test, the above measures should be resorted to again in six months. Where but few reactions are found the retest can be deferred for one year. It is not safe to allow more than one year to elapse before making the retest, which should be repeated yearly.

In herds where animals are purchased frequently, the test

should be applied at the time of purchase by a veterinarian approved by the purchaser. Animals thus tested and passed should be kept on probation for two months and retested before they are allowed to mingle with the older members of the herd. The stable in which these animals pass the period of incubation should be carefully disinfected before they are admitted to it. The test of the herd should be applied at least once each year. In cases where many reactions are found the test should be made every six months until a low percentage is obtained. It is not advisable to test too frequently. The repeated use of tuberculin may produce immunity to the test.

The sale or distribution of tuberculin should be controlled by state laws and it should be given out only on the order of an official veterinarian. Every animal tested should be reported to some officer who has charge of this work and the records of such tests should be available for public investigation.

Every effort should be made to disseminate what knowledge has already been accumulated in reference to handling tuberculosis. The disease can never be satisfactorly controlled as long as ignorance and old, false ideas reign supreme.

THE next annual meeting of the American Veterinary Medical Association will be held in Chicago, September 14 to 17, 1909.

A VETERINARIAN IS A PHYSICIAN.—The *Morning Press,* Santa Barbara, California, of October 15th, states that the School Board refuses to recognize the Health Board as a legal body because Dr. J. H. Hester, one of the members of the Board of Health, is a veterinarian, in contradistinction to being a "physician," as the law requires, and demanded his removal. The mayor refused to remove Dr. Hester on any such ground, as the veterinarian has a broad knowledge of comparative medical science and best knows the needs of an efficient dairy inspection. A later report says that a legal opinion has been given to the effect that a veterinarian *is* a "physician." Dr. Hester will retain his seat on the Board of Health as a guardian of the health and lives of the human population from infection of animal origin.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

OBSTETRICAL CASES.*

By P. A. Aagesen, V. S., St. Ansgar, Iowa.

No. 1—April 19, was called to Mr. Kleinworth's farm and found one of the most difficult cases I have ever seen. Mare strained hard and could not stand up and half of the placenta loosened. In exploring I found a transverse presentation, but could not find head, tail or legs. I at once injected oil and tried to get a different presentation. Failing in this I punctured the foal and lots of gas escaped and then succeeded in getting a posterior presentation. I then explored for the legs and found them to be bent so it was impossible to lift them up to the pelvis. To make as quick delivery as possible I amputated the limbs in the hip joints and got them out and found two hock joints on each leg. The extra bones were bent over each other. I then fastened a rope in the pelvis of foal and two men pulled without results. I then made two long cuts, one on each side of the backbone (and more gas escaped), then one man pulled and the foal came out with balance of placenta. After disinfecting the wound we went to our dinner. Upon our return the mare was standing. Two weeks after she was put to work. If the mare had been able to stand up I think I could have delivered her in one hour, whereas it took three hours.

No. 2—On May 10 I was called to Mr. Robertson's place to attend a mare. As I was sixteen miles from home and not quite ready to start I told him that it would take about three hours before I could get there. On my arrival found mare in severe labor pains and vagina very swollen. I found I had a difficult case. Posterior presentation with back downward. I succeeded in getting the legs through the pelvis and expected to turn the foal. Not succeeding I explored again and found the head over the hip. I put the repeller in the nose and mouth and pushed it back about one foot. Then I found other trouble. The belly was too large. I made an incision at the belly and removed

*Report made to the Iowa State Veterinary Medical Association.

its contents. Then I succeeded in turning the foal and the mare was delivered and came out all right.

No. 3—Anterior presentation of monster. This was at the Austinson farm. The head, as large as a candy pail, was turned downward. I punctured the head and the water emptied out. By succeeding in introducing both of my arms I telescoped the skull bone. I found the skull devoid of brains.

In my professional practice of forty-three years I have never met so many obstetrical cases as last season. I was called to thirty-three cases during the period named.

A TWO-HEADED CALF.

The REVIEW is indebted to J. W. Rossiter, D.V.S., Fostoria, Ohio, for this picture of a two-headed calf. Dr. Rossiter writes that the spinal column was double dividing or parting just back of the shoulders and connected by short ribs. There were two hearts and two sets of lungs, one stomach and single intestines. The animal had two tails.

ANTIPERIOSTIN.*

A NEW THERAPEUTIC AGENT FOR THE TREATMENT OF BONY GROWTHS AND GALLS.

By Veterinarian S. Wachs, Vienna.

Translated by J. V. Laddey, D.V.S.

Of the samples of various modern medicaments that have recently been submitted to me, Dr. Klein's Antiperiostin interested me most, since several commendatory testimonials in regard to its uses and results obtained by Austrian and German veterinarians have already been published. To judge from its composition, Antiperiostin is a solution of (C-10 H-10 J-2 O-5 Hg), which is prepared by a special process.

The principal application for Antiperiostin is found so far in all cases of exostoses and bursal enlargements. In my practice, in which occur many surgical cases, I have applied Antiperiostin in addition to above conditions, also to acute inflammations of tendons, tendinous bursae and articulations, as well as in spavin. I have had the opportunity to apply and to test Antiperiostin repeatedly in cases of newly developed bony growths as well as in those of old standing.

First of all I can state that in cases where there was lameness, due to these new growths, the same was abated in about three to four days, when the respective animal could again be worked. It should be mentioned, however, that a few days after the application of Antiperiostin an edematous swelling set in which, however, was not serious and in a short time resolved itself.

As is the case with other counter-irritating applications, the usual consequences also presented themselves here. The area thus treated became gradually covered with an extraordinarily hard scab, which in a measure appeared to be equivalent to a pressure bandage. After three to four weeks these scabs would become loosened and the exostoses which had existed were either entirely removed or had become reduced to a hardly noticeable minimum.

In recent new growths, also in periostitis, the pathological process had run its course in a highly satisfactory manner. The analogous procedure in the various kinds of galls and bursal enlargements produced equally satisfactory results.

*Reprint from Tierarztliches Zentralblatt.

In other acute inflammatory processes where consequently a marked lameness existed complete cures set in after about eight to ten days.

To corrobate the above I will cite from my case-book all those cases which were treated by me with Antiperiostin.

Case I, June 12, 1906.—Light wagon horse belonging to the firm of Sch. & Co., affected with spavin, presents three hours after application an edematous swelling of the respective extremity with an accompanying serous transudation at the seat of operation; in the next few days resolution of the edema and a desiccation of the exudate to a thick and closely adhering scab took place. After the fourth day the horse was used for work. Lameness had entirely disappeared and in about six weeks the scabs fell off.

Case II, July 14, 1906.—Middle-weight carriage horse belonging to F. & Co., had gone lame in varying degrees for some time in near hind leg due to an old bony growth just below the hock-joint. On the fourth day after applying Antiperiostin the horse traveled entirely sound and is being used regularly ever since.

Case III, August 24, 1906.—Middle-weight draught horse belonging to the express firm, L., went lame in near front leg due to two old bony growths and a thickening of the flexor tendons. Six days after an Antiperiostin application it was all ready able to work. The bony growths have almost entirely disappeared.

Case IV., August 25, 1906.—Light wagon horse of the same firm was treated with Antiperiostin for tendinous bursal enlargements on both hind legs. After eight days it had made a complete recovery.

Case V., January 5, 1907.—Russian coach horse belonging to the firm of S. & H. went lame in the off-foreleg due to a recent exostosis. Six days after Antiperiostin had been applied the horse was fit for work. The bony growth has been entirely removed.

In the last four mentioned cases the same accompanying local changes presented themselves as in case No. I. One application of Antiperiostin sufficed to produce these astonishingly quick and excellent curative results.

The hair will fall out at the seat of operation with Antiperiostin, as is the case with all counter-irritating applications, but these will grow again in a comparatively short space of time.

ARMY VETERINARY DEPARTMENT.

PROVISION FOR PHYSICALLY DISABLED VETERINARIANS.

The forty-fifth annual meeting of the American Veterinary Medical Association is an event of the past and it was in all probability the greatest meeting in the history of the association. Its deliberations were of the highest order and will be of the greatest importance to the profession.

The Army was represented by Drs. Griffin and Foster officially and by myself of my own volition. The chairman of the Army Legislative Committee (Dr. Turner, of Washington, D. C.) was present and rendered his report which consists, in brief, as follows:

That the committee, feeling dissatisfied with the Veterinary Bill which passed the Senate at the last session of Congress, on account of no provision for those physically disabled in the service in the line of duty, used all their power to prevent its passing the House unless so amended.

The association accepted this report with its hearty approval, and passed resolutions* to the effect that should Congress amend the present Veterinary Bill so as to provide for those worthy members of the profession in the army that it would have the support of the association, and it further voted that copies of said resolution be sent to the Secretary of War, Chief of Staff, and the chairman of the Military Committee of both the Senate and House.

C. H. JEWELL.

THE Kansas City Veterinary College has an enrollment of over five hundred for the current session. This excellent institution has added several veterinarians to its faculty, including: Dr. H. Jensen, of Weeping Water, Nebraska, instructor in Pharmacy and Materia Medica; Dr. S. L. Stewart, of Coffeyville, Kansas, Director of Laboratory Anatomy; Dr. C. C. Kinsley, Oakley, Kansas, Hospital Clinics.

* The Resolutions were published in October REVIEW, page 117.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Fibrous Tumor Growth on the Leg of a Mule [*D. Silvestro Rabagliati, B.Sc., M.R.C.V.S.*].—Record of a case in a mule which was stopped working on account of her condition. She had a large tumor-like mass involving the whole metacarpal region of the off leg and extending from the knee to the foot. The growth was irregular, raw, and looked like granulating tissue with small centers of suppuration. The anterior part of the wall of the hoof was partially separated from the rest. The upper part of the wall, the heels and the frog, being composed of a very irregular growth of horn in fungoid masses. The mule had marks of having been fired on the off thigh. The animal being incurable and useless, she was destroyed.

Post-mortem—Carpus normal. Metacarpus much enlarged with great mass of fibrous tissues surrounding the bones. Tendons are normal. Suspensory ligament had lesions of old standing sprain. Large exostosis on the head of the small internal metacarpal, also on the upper third of this bone there was a large splint, interfering with the action of the suspensory ligament. There was one also on the external metacarpal. The sesamoids were much enlarged with exostosis. There was also one on the os suffraginis and on the os pedis, which had very large side bones. The navicular bone was normal.—(*Veter. Record.*)

Comminuted Fracture of the Os Calcis [*Lieut. H. C. Stewart, A.V.C.*].—Discovered disabled on early morning, a field battery horse presented the near hock and surrounding tissues much swollen and inflamed. On examining the leg no evidence of fracture, such as crepitation, etc., could be made out on account of the swelling of the parts. The gastrocnemius tendon was much relaxed and similar to what is observed in case of rupture of the flexor metatarsi muscle. No weight was put on the leg and moving was possible only by scarcely touching the ground with the toe. The position of the point of the hock was somewhat similar to that of the point of the elbow in the condition

known as "dropped elbow." Diagnosis: Fracture of one of the large bones of the hock, possibly the astragalus or the os calcis, most likely. The animal was destroyed and a fracture of the lower half of the os calcis was discovered, and, after boiling the joint, this bone was found to have been broken into thirteen pieces. The cause of the accident was a kick from another horse. —(*Veter. Record.*)

Note on the Occurrence of a Large Flagellate, Associated with Piroplasmata Infection in a Cow, in British Columbia [*Thos. Bowhill, F.R.C.V.S., F.R.C.S.*].—Investigations have recently been undertaken by the author in order to determine, if possible, the cause of a disease known locally as red water. He writes that, during his investigations, he found with an atypical piroplasmatic infection in the blood of a cow killed for post-mortem, a flagellate belonging to the trypanosomidæ. The parasite presented a flagellum at both extremities, but whether it was a true trypanoplasma or a trypanosome with a flagellum was a matter for future consideration. The piroplasmata observed occur mostly in pear and polygonal form. A few flagellates were some times seen, but in only a few instances did he observe a true bigeminate leaf form. These parasites may be modified form of the *Piroplasma bigeminum.* The malady runs a chronic course and the parasites are difficult to find. Infected animals succumb after a third attack. The rôle played by ticks in the spread of the disease is not yet fully determined. The author proposes to name the parasite *Piroplasma hudsonius bovis.*—(*Veterin. Record.*)

A Malformation [*W. E. Blackwell, M.R.C.V.S.*].—A case of difficult parturition in a cow with a fœtus in breech presentation. The abdomen of the little fellow being distended and emphysematous, an incision was made through the median line and the viscera removed. More room being obtained, examination was possible. It was then found that the fœtus was abnormally large and that the hind legs were fully flexed but with the points of the hocks turned underneath the sternum and between the fore legs, while the hind feet were just above the udder. In other words, the hind legs were turned completely round with the points of the hocks looking anteriorly. The stifles were in the pelvic cavity. With much difficulty and considerable traction the cow was delivered but not without an abundant hemorrhage which was arrested with cold applications. Two days after the cow was doing well.—(*Veter. Record.*)

Two Cases of Scrotal Hernia in Dogs [*Prof. F. Hobday, F.R.C.V.S.*].—*First Case*—Two-year-old dog had scrotal hernia on the left side. Put to sleep with morphia, he is operated on. The swelling was reduced and an incision made over the external abdominal ring. The inguinal canal being thus exposed, the finger was passed into the canal to push the bowel and the omentum into the abdomen. The internal ring being then free, it was sutured with fine silk, the stitches being made close together and with great care that no space be left at either end as it is at this point that most frequently a return of the bowel takes place. The skin was sutured with silkworm-gut and covered with iodoform colloid. Complete radical recovery.

Second Case—Pekinese, two months old, had a right scrotal hernia. Operated, as in the preceding case, six or seven months later. Had several sutured abscesses. Was discharged after a month. Had diarrhea and a violent cough, which caused much strain, until one day the dog looked dull and would not move any more. On the side where the hernia had been there was a swelling of different nature, dark, tense and painful to the touch. Evidently it was a piece of bowel or omentum strangulated. Gersuny's operation is tried but fails, and castration with removal of the right testicle by covered operation was indicated. It was performed and followed by radical and complete recovery. —(*Veter. Journ.*)

Enterotomy—Removal of Foreign Body from the Bowel—Recovery [*A. Johnson, M.R.C.VS., and F. Hobday, F.R.C.V.S.*].—Japanese spaniel bitch has had no action from the bowels, notwithstanding castor oil and enemas. She vomited several times and abdominal palpation revealed the presence of a foreign body. Laparatomy was performed, the dog being put to sleep with morphia, and antiseptic care being taken. The foreign body was found twelve inches behind the stomach, the bowel there being rather inflamed. An incision through the intestines brought out a smooth pebble about one inch long and half an inch thick. A double row of Lembert's sutures was applied with fine stitches of silk. Antiseptic care was resorted to, and, with hygienic measures and careful diet, a recovery took place without any unusual event.—(*Veter. Journ.*)

Death from Obstruction of the Bowel by a Pebble [*D. Chasterley, M.R.C.V.S.*].—Aged fox terrier being treated for otorrhea was taken with vomiting which was relieved with subnitrate of bismuth. After a few days he is found in collapse,

almost unconscious, and extremities cold. Is revived with stimulants. Finally he dies. Post-mortem: The only lesions found were in the large intestines, which were intensely discolored and contained a large pebble one ounce in weight and one and one-half inch in diameter.—(*Ibidem.*)

Fractured Pelvis Caused Distokia [*C. W. Townsend, M.R.C.V.S.*].—Five-year-old mare cannot foal on account of abnormal small size of the pelvic cavity. She is destroyed. A large callous involving principally the pubic bones and the region round the cotyloid cavity was found, preventing the extraction of the foal. The passage was reduced by nearly one-half its normal width.—(*Ibidem.*)

Fractured Jaw in a Horse [*M. M. Hodgkins and Sons, M.R.C.V.S.*].—With a kick the jaw of a mare was fractured in two places. Holes were drilled on each side of the fracture and the pieces of bones brought into position and held together with silver wire. After one month the mare went to work, the wires being left *in situ*.—(*Ibidem.*)

Interesting Fracture Following a Previous One [*Clement Elphice, M.R.C.V.S.*].—History of a bay gelding, thirteen years old, which was a bad worker. He has had three or four falls without any discernible cause. Walks in a peculiar way, the body swaying from one side to the other, with marked platting of the fore and hind legs, and every few yards a dropping of the hind quarters. His motion looks rather that of locomotor ataxia. Backing is difficult. By rest the animal seemed to improve; but finally relapsed. He was destroyed. The post-mortem showed that all the organs were healthy. But there was a large callous on the body of the second lumbar vertebræ on the off side and another smaller of more recent formation. There was also a slight protrusion of this last into the vertebral canal.—(*Ibid.*)

Cloacal Formation in a Bitch [*H. Brassey Edwards, M.R.C.V.S.*].—Bitch, ten days old, has been unable to pass fæces and nevertheless has taken moderate amount of milk. In the perineal region the prominence usually felt in imperforated anus is missing. Dog is put to sleep. A probe passed into the vulva, a short incision is made over the perineal region above the vulva. But on dissection no trace of the rectum was found. Laparatomy was then decided upon, but before the abdomen could be opened the dog died. At the autopsy the rectum was found to have an

opening into the neck of the uterus and evidently the dog had been passing fæces and urine through a common orifice.—(*Veter-Journ.*)

FRENCH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Epithelioma of the Mammæ, Generalized by Circulatory System in a Slut [*Mr. A. Daille*].—An old slut had a tumor of the mammæ in the inguinal region for which she was operated. An abundant hemorrhage having occurred, another growth situated in the left flank was left for further interference. Two months after recovery from the first operation the animal had become cachectic and soon died. At the post-mortem were found on the left flank, at the deep face of the abdominal muscles, under a much-thickened peritoneum, an enormous growth weighing 3 kilogrammes 650 grammes (over seven pounds) and as big as a man's head. Suspended to the left psoas muscle and the transversalis lumborum it did not extend in the lumbo-sacral arch. The spleen was congested and had a whitish pisiform nodule, similar in aspect to the large one in the abdomen. The kidneys were full in the cortical substance with similar neoplastic nodules. The lungs contained numerous tumors also. The right semi-tendinosus muscle has one in its femoral portion, which occupies the greatest portion of the fleshy part of the muscle. A subcutaneous abscess, back of the left shoulder and due to a septic injection of artificial serum, had given rise to myositis of the olecranon muscles. The growth of the flank was surrounded by a thick fibrous capsule, sending partitions and forming lodges in which was contained the neoplastic tissue, firm, white-yellowish and lardaceous. The nodules of the kidneys and lungs had the aspect of sarcomas. Under the microscope the growths appeared made of epithelial cells, with disorganized development. It was an atypical epithelioma, having in places the structure of adeno-epithelioma.—(*Revue Veterin.*)

A Case of Jabot in the Horse [*MM. Grosjean and Lesbougris, Army Veterinarians*].—This is a peculiar case. In 1904 a horse has colic, accompanied with abundant salivation and re-

peated movements of mastication. Gastric indigestion is suspected, treated, and in less than an hour the animal is well. Six months later, return of the trouble, but more severe. There are violent pains which last for four hours and ended by the animal coughing through the nostrils food which has not the gastric odor of that which has been in the stomach. Ruptured stomach is suspected. It was an error, as the animal gets well over his trouble. Perhaps we have to deal with a jabot of the œsophagus and hygienic dietetic treatment is prescribed. For two years the condition is about fair, the animal has spells at irregular intervals and these seem to occur only when there has been committed an error in his diet. In the last year of the life of the horse he has had about ten attacks. The last one, more severe, was accompanied with rejection of greenish spumosities, and from that day he presented all the symptoms of broncho-pneumonia which carried him off after eight days of sickness. In making the post-mortem no indication of jabot was found in the thoracic cavity. It was in the abdomen that it existed. Preceding immediately the stomach, of which it seemed to be a diverticulum, it formed an ovoid mass as big as a man's head which was hard on pressure. Its walls were formed of a very thin serous and a mucous membrane. There was no muscular tissue involved and the lesion was not a simple dilatation. It was the consequence of a hernia of the mucous through the muscular coat. —(*Revue Veterin.*)

Paraphimosis Complicated with Gangrene in a Dog [*M. Barrat*].—This is not a rare accident in the dog after coitus; although it is not generally serious it may become so, as is proved by this case. Having been left with a slut in season, and satisfied himself and her, a well-bred dog three days after, besides having paraphymosis, is in a bad condition. His nose is dry, the eyes hollow, belly retracted, no appetite. The penis, which has resumed its normal dimensions, hangs out of the sheath, greenish in some places, in others blackish. The end of the urethra alone is red. The organ is hard and gives the sensation of a dry mass. Back of the swelling of the head of the penis the preputial ring has given rise to a strangulation sufficient to bring on mortification of some tissues but not enough to arrest micturition. The dog urinates normally. Treatment: The dog was secured, the mortified and ready to slough tissues are removed or excised, the prepuce is incised so as to enlarge its entrance and permit the return of the entire penis. Daily wash-

ings and injections of phenic acid water with substantial tonic treatment brought out a rapid recovery.—(*Ibidem.*)

Hydrometry or Hydrops Uteri in a Cat [*Mr. P. Leblanc*].—Rather uncommon pathological case. A female cat that has had several litters of kittens shows, since several weeks, a much-enlarged abdomen. She eats well, has no cough and is otherwise in apparent good health. However, she has a peculiar appearance. She looks like a balloon. Her abdomen has the shape of a spheroidal mass no matter in what position the cat is placed. The abdomen is not drooping nor fluctuating, as in ascitis. In feeling the abdomen one gets the sensation not of a liquid mass collected in the peritoneum, but more of a big cystic tumor or a large collection occupying in all probability the uterus. An exploring puncture allows the escape of one litre of citrine, aqueous liquid, odorless, but not having altogether the characteristics of an ascitic liquid. The cat is destroyed. The lesions of post-mortem revealed an enormous intrauterine collection. The uterine horns are enormous, communicate together at their emergency from the body of the uterus, and both contain one litre of liquid similar to the one obtained with the puncture. The walls of the uterus are thickened; the ovaries and the other organs are healthy.—(*Journ. de Zootechin.*)

Gangrenous Pneumonia Complicated with Septic Localized and Fibrinous Pleurisy—Post-mortem [*A. Chanier, Army Veterinarian*].—*Paulonia* was a six-year-old mare, which was under treatment for a traumatic exudation of the left haunch, which had been treated by puncture with the actual cautery and a blister. Nothing abnormal occurred for a few days when, towards the tenth day, she looked dull and low-spirited. Perhaps she had been cast during the night, as the hairs of the tail are roughened and the wound of the cautery and blister is raw and bleeding. The temperature is only a little higher. Two days later the aspect has become alarming. Anorexia, great thirst, conjunctiva injected, the forehead is hot while the ears and extremities are cold; serous discharge escapes from the nostrils. No cough, either spontaneous or by pressure of the throat. Breath odorless. On percussion there is an area of tympanic resonance; respiratory murmur is absent in the lower third of the left lung; no pathological bruit is detected. Heart sounds plainly heard and normal. No sound by succussion. Percussion gives the sensation of subcostal liquid collection. Exploring puncture gives escape to 1400 grammes of sero-blood clear

fluid, after which the mare seems relieved. Two days later relapse. The animal throws all her weight on the right lateral biped. There is great hypersensibility of the left costal walls. Several clots of blood have been expelled through the nostrils. Breath is still normal. The left tympanitic resonance still exists. Respiration is louder on the right. New thoracenthesis gives out only 1250 grammes of colored fluid. By exclusion in the differential diagnosis, localized intrathoracic effusion is diagnosed. The mare died after five days of illness.

Post-mortem—Pulmonary lesions. On the anterior lobe of the right lung there is a spherical induration as big as a child's head, composed of a central zone and a peripherical. This is formed by the splenization of the lung tissue; the other is a center of pulmonary gangrene, filled with sanious, fœtid mush, where are found bronchia and blood vessels more or less necrosed. The left lung is atelectasied in its antero-inferior region. At the lower part of the gangrenous center there is an opening going through the mediastinum into the left pleural sac, and, hence, formation of a large suppurative collection whose cavity is lined by a fibrino-purulent layer, here yellowish and there red brown or dark gray. The heart is normal. Pericardium contains 500 grammes of cloudy, reddish fluid. There were also abdominal lesions. The kidneys and the liver had undergone softening and degeneration. There were also hemorrhage, perineal and subperitoneal; also hyperæmia of the pelvic curvature of the large colon, ecchymotic spots in the mesentary and a wide subcutáneous hemorrhage in the right flank. The muscles were softened and discolored, especially those of the hind leg. The march of these manifestations must have occurred as follows: (1) Localized infection of the right lung by a septic foreign body; (2) Gangrenous pneumonia followed by perforation of the lung and anterior mediastinum with infection of the left pleural sac; (3) General intoxication ending in death.—(*Revue Gener. de Medec. Veter.*)

Hypodermic Injections of Sulphate of Veratrine [*Mr. Detchevers*].—Some years ago the author published an article on the use of that drug for post-partum inflammatory mammitis. It is a method which has given him and many others excellent results and it deserves to be more generalized. Post-partum mammitis implies with the arrest of milky secretion often the loss of a part of the udder and not rarely that of the life of the ani-

mal. Mr. Detchevers has resorted to those injections as prophylactic measures and has had good success. To be efficacious the injection must be made during the febrile initial stage as much as possible. After it, often as early as the next day, the mammitis is on the road to resolution. In severe cases it can be renewed without fear. Employed in full febrile stage it has the advantage of not interfering with the milky secretion, not reducing the appetite, nor the rumination. As prophylaxy, the injection must be made two or three days after calving, and it can be renewed every ten days during the critical period; that is, twenty or thirty days after parturition. The dose is from 5 to 8 centigrammes, which can be raised to 10 for large animals. —(*Semaine Veter.*)

GERMAN REVIEW.

By J. P. O'Leary, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

Investigations Concerning the Patho-Histological Changes in the Lens in the Various Forms of Cataract in the Horse [*Dr. Ferd. Mette*].—The author had examined 19 eyes of 13 horses which suffered from cataract. The cause of the cataractic clouding was found in previous attacks of periodic ophthalmia (*cataracta symptomatica*). In some cases the formation of the cataract was attributed in part to old age (*cataracta senilis*). The well-known classifications: clouding of the lens (*cataracta capsularis*), clouding of the lens substance (*cataracta lenticularis*), clouding of the lens capsule and substance (*cataracta capsulo-lenticularis*), the author found the following exceptions: 1st. The pathological changes in the lens capsule consisted: (a) deposits on the anterior of the capsule, (b) the formation of fibrous tissue on the inner surface of the capsule, (c) proliferation of epithelium on the inner surface of the lens. In a case of cataracta symptomatica, we found on the inner surface of the anterior capsule a deposit of organized fibrous tissue which evidently had formed through fissures in the capsule of the lens. 2nd. On the substance of the lens the following anatomic conditions were perceptible:

(a) Extensive sclerosis and destruction of the lens fibres.
(b) Vacuole formations.
(c) Morgagnic bodies.

(d) Fatty degeneration of the lens fibres.
(e) Cholestearin crystals.
(f) Calcareous deposits on the lens substance.
(g) Hæmatoiden crystals.
(h) Connective tissue degeneration.

3d. In the cataracta capsulo-lenticularis, we find anatomic changes in the lens capsule and substance. In their nature they coincide with the lesions described under 1 and 2. All the above-mentioned changes are not observed separately, but are found more or less simultaneously on the lens capsule and lens substance.—(*Monatsheft für praktische Tierheilkunde, XVIII. Band.*)

An Outbreak of Herpes Tonsuraus and Trichorrhexis Nodosa, Contagious in Character [*Vet: H. Schindler and J. Moser*].—These diseases appeared among the remounts of the 5th and 15th dragoon regiments. Herpes tonsurans affected the greater number of horses in a mild form, and was treated successfully with tincture of iodine. Trichorrhexis nodosa attacked 61 per cent. of the remounts. The symptoms were characteristic, particularly on the hairs of the tail, and, in some cases, on those of the mane. Numerous whitish-gray spots and nodular swellings were perceptible, at which point the hairs were easily broken. The belly hairs were ravelled and appeared like a hair brush. The body hairs were not affected. In some cases the tail became denuded of hair to such an extent as to deserve the name of rat tail for considerable time.

Carboneum Sulphuratum in the Treatment of Distomatosis [*Vet. R. Floris, Györ*].—During the current year great floods occurred in Hungary, and, as a result, distomatosis appeared very frequently in many localities. Hitherto no remedy had been discovered which when given internally would destroy and expel the liver fluke. The treatment of distomatosis formerly was limited to the liberal use of good, nourishing food in conjunction with bitter medicinal agents and the mineral salts. In many cases 50 per cent. of the animals affected died. In the beginning of this year Chief Veterinarian Julius Taar published the results of his experiments with carboneum sulphuratum on horses affected with intestinal worms. Floris made similar experiments in cases of distomatosis. He prescribed carboneum sulphuratum in gelatine capsules, 10-15 grammes *pro dosi.* The succeeding day the fæces were colored a dark brown and had a disagreeable, penetrating odor. At each defecation 5-10 dis-

tomum were visible in the excrement. The above medication was repeated three to four times a week for animals of all ages. During the course of the treatment the animals showed good appetite. No ill-effects from the CS_2 were observed. The treatment is very inexpensive, one dose costs only a few cents.—(*Allatorvosi Lapok,* 1907, *No.* 45.)

News from Georgia.—The work of the State Veterinary Association of Georgia has been rewarded by the enactment of a law creating a State Board of Veterinary Examiners and regulating the practice of veterinary medicine, this act being passed by the Legislature on August 10th, and approved by the Governor on August 17th. The law requires the endorsement of the State Veterinary Association for the five members of the Board. The candidates were elected by the association on September 3, and were confirmed and officially appointed by Governor Smith on September 17th, being Drs. Anderson, Jago, Jolly, Morris and Schwencke.

The new examining board met for organization on October 7th, drew lots for terms of office and elected Dr. Anderson, of Macon, president; Dr. Jago, of Athens, vice-president; and Dr. Schwencke, of Thomasville, secretary. The first regular examining session of the board will be held in Atlanta, on December 22d, to issue licenses for practice in Georgia. The law requires all persons who profess to be veterinarians and who charge for their services, to be properly licensed, under penalty of fine and imprisonment. The fee required for examination is $10.00, and the license when once issued is permanent. Candidates holding diplomas from recognized veterinary colleges are licensed upon payment of the same fee, by showing proof of graduation.

The examining board depends solely upon the fees for travel and other expenses of the work, so the task will be largely a labor for the good of the cause. But the members of the profession are elated over this recognition and help, and feel confident that it will be the source of much good in the near future.

During the same session of the Legislature, a bill for the establishment of a State Live Stock Sanitary Board and appointment of a regular State Veterinarian, met an untimely death at the hands of the Agricultural Committee, and was reported unfavorably to the House, on account of an appropriation clause of $3,000. A similar bill will be introduced at the next session, which we sincerely trust will meet with a better fate.

CIVIL SERVICE EXAMINATIONS.

EDITOR.

OFFICE OF EXPERIMENT STATIONS, DEPARTMENT OF AGRICULTURE.

The United States Civil Service Commission announces an examination on November 24-25, 1908, at the places mentioned in a list printed by the Commission, to secure eligibles from which to make certification to fill a vacancy in the position of editor in charge of the departments of entomology, economic zoology, and veterinary science, in the Experiment Station Record, Office of Experiment Stations, Department of Agriculture, at $1,500 per annum, and vacancies requiring similar qualifications as they may occur in that Department.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	Weights.
1. Spelling (twenty words of more than average difficulty)	3
2. Arithmetic (fundamental rules, fractions, percentage, interest, discount, analysis, and statement of simple accounts)	3
3. Penmanship (the handwriting of the competitor in the subject of letter-writing will be considered with special reference to the elements of legibility, rapidity, neatness, general appearance, etc.)	3
4. Letter-writing (a letter of not less than 150 words on some subject of general interest. Competitors may select either of two subjects given)	6
5. Copying from rough draft (the writing of a smooth copy of rough-draft manuscript, including the correction of all errors of spelling, capitalization, syntax, etc.)	5
6. Editing and abstracting	10
7. Proof-reading and indexing	10
8. Special subject—(*a*) Economic zoology and veterinary science, or (*b*) Animal husbandry and dairying	40
9. Training and experience (rated on application)	20
Total	100

A rating of at least 70 per cent. in the special subject chosen is required for eligibility.

Some knowledge of French and German is required, and the candidate's proficiency in these languages will be considered in the rating for training and experience.

The position to be filled as the result of this examination requires a man of special qualifications, including not only fundamental knowledge in the subject chosen, but considerable advanced training, and general familiarity with its literature.

Two days will be required for this examination.

Age limit, 20 years or over on the date of the examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed by the Commission, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

CHIEF, CATTLE AND GRAIN INVESTIGATION LABORATORY.

The United States Civil Service Commission announces an examination on November 9, 1908, to secure eligibles from which to make certification to fill a vacancy in the position of chief in the cattle and grain investigation laboratory, Bureau of Chem-

istry, Department of Agriculture, at $2,500 per annum, or less, and vacancies requiring similar qualifications as they may occur.

Men only will be admitted to this examination.

Competitors will not be assembled for any of the tests.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	Weights.
1. Education and training	40
2. Practical experience in the examination of cattle food materials, grains, cattle remedies, and in the enforcement of state feeding-stuff laws	40
3. Original contribution to the literature of cattle food and grain analysis and composition, or essay on "The Enforcement of a Feeding-Stuff Law"	20
Total	100

Age limits, 25 to 45 years on the date of the examination. The examination is open only to applicants of mature years, whose education and training are such as to enable them to carry on and direct original work in cattle foods and grains and to aid in administering the National Food and Drugs Act in so far as it applies to cattle foods.

This examination is open to all ctizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 304 and special form. No application will be accepted unless properly executed and filed, in complete form, with the material required, with the Commission at Washington, prior to the hour of closing business on November 9, 1908. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

THE veterinarians of Saskatchewan will approach the new legislature and endeavor to get a bill through the coming session. At the present time an ordinance is in force admitting veterinarians to practice on payment of a fee of $15 provided they are graduates of a college approved by the A. V. M. A.

BIBLIOGRAPHY.

ANIMAL PARASITES AND PARASITIC DISEASES. By B. F. Kaupp, D.V.S., Instructor in Parasitology, Kansas City Veterinary College; late Veterinary Inspector, Bureau of Animal Industry, United States Department of Agriculture; Secretary of the Missouri Valley Veterinary Association; late President of the Missouri State Veterinary Medical Association, etc. 207 pages, 73 illustrations. Chicago. Alexander Eger, 1908.

Parasitism is becoming a highly important study accessory to the vast field of bacteriology and bio-pathology, a thorough knowledge of which is essential to the veterinarian whether in private practice or engaged in veterinary sanitary work.

The study of parasites as the cause of irritation, depletion and exhaustion interfering directly with the functions of the organs they invade is not sufficient for the modern practitioner. He must know in what way they contribute to the production of toxins which interfere with vital functions, but what most concerns the sanitarian is the fact that certain parasites are the bearers of dangerous microbian infection from animal to animal and from animal to man.

Students have been greatly handicapped in pursuing the study of animal parasites and parasitic diseases for the want of a suitable text-book, having to depend largely upon such incomplete notes as they were able to take from lectures.

Therefore, a book that gives the essentials in a concise and comprehensive manner will be helpful to the student and appreciated by the profession in general.

While Dr. Kaupp, in his treatment of the subject, has made no attempt at exhaustiveness, he has been remarkably successful in presenting the essentials of parasitology in a simple and concise manner, adapted to the student and others interested in the subject. He has condensed much valuable data in one small volume and his classification is comprehensive and well adapted for the purposes intended.

Dr. Kaupp has had twelve years' experience in teaching parasitology. In the preface to his book he says that he has long felt the want of a concise text-book incorporating the names of the common parasites of domestic animals. The work is divided into four chapters, treating the following subjects, viz.: External parasites, internal parasites, protozoa and the preparation of specimens.

The names of parasites are arranged in tabular form at the beginning of each of the first three chapters. In the first column of the table will be found the Branch; in the second the Class; in the third the Order; in the fourth the Family, and in the last the Genus and Species, names by which we know the parasites. By reference to this table one can trace each species at a glance down through the classification to the starting point—the Branch.

Each parasite is dealt with in the order of the tabulation.

The facts about each are noted under the headings: Synonym, Distribution, Description, Life Cycle, Animals Infested, Parts Infested, Conditions Produced (pathological anatomy), Symptoms, and Treatment when the latter is of any avail.

His student, Mr. C. D. Folse, has greatly aided the author in illustrating the book by making pen drawings from the more common parasites in his collection. These are natural size and according to measurements.

The photomicrographs are made by the author himself with an ordinary kodak over the ocular lens of the microscope and given time exposure.

In short, Dr. Kaupp's book contains in brief all about the common parasites and is worthy a place in every veterinarian's library. The work of the publisher leaves nothing to be desired, the paper, letterpress, illustrations and binding being uniformly good.

Dr. Kaupp has recently accepted a professorship in the Veterinary Department of the Colorado State College of Agriculture and Mechanic Arts at Fort Collins, Colorado. We bespeak a large circulation for his excellent book.

The Veterinary Department of the Colorado Agricultural College is now making and distributing Black Leg Vaccine to the farmers and stockmen of Colorado. They expect very soon through the Experiment Station to take up the work of Hog Cholera Serum as recommended by the Department of Agriculture.

The Colorado Veterinary Medical Association met at the State Capitol, Denver, on the 24th ult., to consider needed legislation. The law as it now stands permits anyone to practice veterinary medicine, surgery or dentistry, providing he does not in any way advertise as a veterinarian.

The law has proved to be entirely inadequate, and an amendment will be asked for.

SOCIETY MEETINGS.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The Review begs to offer its readers a brief report of the transactions of the International Congress on Tuberculosis held in Washington, D. C., from September 28 to October 12, and especially of those of Section VII., in which veterinarians of national and international reputation took leading parts. The sessions of this section, which were of the highest value, dealt with the very important subject of "Tuberculosis of Animals and Its Relation to Man." It is not necessary to dwell upon the significance of the latter portion of this subject, but it should be mentioned that there was no question discussed at the congress in which a greater interest was manifested than in this one.

Koch's position on the question of the relationship of bovine and human tuberculosis is well known to all veterinarians and with his presence at this congress it was thought probable that the relation and the danger of animal tuberculosis to man, whether through milk or otherwise, would be definitely established. This phase of the subject as well as the economical side of animal tuberculosis chiefly concerned Section VII., and we cannot refrain from congratulating the veterinarians who participated for the excellency and high character of their work, which was noted all through the transactions. It is difficult now even to estimate the amount of benefit which will be derived from this congress. However, it seems from the character of the papers and discussions that with the energetic and thorough work now undertaken by the municipal, state and federal health and sanitary departments, it will be possible not only to check the spread of tuberculosis but to considerably diminish it.

The opening session of the scientific program of the congress took place on September 28, on which occasion addresses were made by the official representatives of the various foreign countries. Secretary Cortelyou presided as a representative of President Roosevelt, who was the president of the congress. This session was very impressive and will be, without a doubt, a pleasant recollection to all those who were in attendance. Practically every civilized nation was represented, sending their greatest specialists for the good cause of aiding in the determined fight against tuberculosis, the greatest menace to the development and prosperity of every country.

After the ceremonies of the formal opening were concluded the various sections went to work in the different halls to carry out their extensive programs. A good-sized hall containing 150 chairs was provided for Section VII., and it was gratifying to note the great interest manifested in the work of this section, as there was scarcely any period during the meetings when all of the chairs were not occupied and frequently "standing room" only was to be obtained.

Section VII. had on its program a large number of papers which it shortly became evident would require more time to present than was originally planned. In spite of the time limits given to the readers of papers and to the discussions, two extra sessions on Saturday, October 3, had to be arranged in order to conclude the program, and at the last session one of the most important phases of tuberculosis was taken up, namely, that of immunization. It would have been an irretrievable loss to those in attendance if Dr. Pearson and Professor Heymans could not have been heard on this subject and their addresses were greatly appreciated by all. Following the precedents of other international congresses to select honorary presidents of each section, the following were elected for Section VII.: Prof. Arloing, France; Dr. Piot Bey, Egypt; Prof. Bang, Denmark; Prof. Heymans, Belgium; Dr. Rutherford, Canada; Prof. Wladimiroff, Russia; Prof. Hutyra, Austria; Prof. McFadyean, England, and Prof. Ostertag, Germany.

Dr. Pearson, as president of the section, opened the first session with very appropriate introductory remarks in which he pointed out the importance of tuberculosis of animals from an economical standpoint and also from its relation to the public health. The first subject taken up was that of the "Prevalence and Economics of Tuberculosis in Animals." Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, opened the series of papers on this subject and revealed astounding facts about the prevalence of tuberculosis in animals and the great financial losses occasioned by it.

Dr. Melvin said in part:

"While the saving of human life affords the highest motive for combating tuberculosis, the prevention of financial loss is alone a sufficient reason for undertaking the eradication of the disease from farm animals. Statistics of the United States Federal meat inspection for the fiscal year ending June 30, 1908, covering 53,973,337 animals, or more than one-half of all those

slaughtered for food in the country, show the following percentages of tuberculosis: Adult cattle, 0.961; calves, 0.026; hogs, 2.049; sheep and goats, 0. The proportion of tuberculosis is probably higher in animals slaughtered without inspection. Reports of tuberculin tests made in the 15 years from 1893 to 1908 by Federal, State and other officers with tuberculin prepared by the Bureau of Animal Industry have been carefully analyzed and tabulated. Out of 400,000 cattle tested (mostly dairy cattle) there were 37,000 reactions, or 9.25 per cent. From these two classes of statistics it is concluded that on an average about 10 per cent. of the milch cows, 1 per cent. of other cattle, and 2 per cent. of the hogs in the United States are affected with tuberculosis, the average percentage for all the cattle being estimated at 3.5.

"The accuracy of the tuberculin test has been confirmed in a remarkable way by post-mortem examinations. Out of 23,869 reacting cattle slaughtered, lesions of tuberculosis were found in 23,585, a percentage of 98.81. Properly prepared tuberculin applied by a competent person is therefore shown to be a wonderfully reliable agent for diagnosing tuberculosis. In cases where the test appears to give unsatisfactory results this is usually due to the use of a poor quality of tuberculin or to ignorance or carelessness in applying it.

"The economic loss on account of tuberculosis in food-producing animals is heavy. The loss on animals in which tuberculosis is found in the Federal meat inspection is estimated at $2,382,433 annually, and if the same conditions were applied to animals slaughtered without Federal inspection the annual loss on all animals slaughtered for food in the United States would be increased to $4,102,433. The stock of animals on hand is also depreciated in value because of tuberculosis. Assuming that living tuberculous milch cows are annually depreciated to the extent of one-tenth of what the loss would be if they were slaughtered, other cattle one-third, and hogs one-half, the total animal depreciation amounts to $8,046,219. The annual loss from decrease in milk production is estimated at $1,150,000, and there also is some loss from impairment of breeding qualities. Taking all these items into account, the aggregate annual loss because of tuberculosis among farm animals in the United States is estimated at not less than $14,000,000.

"Such heavy financial losses make the eradication of tuberculosis from farm animals very desirable purely as an economic

matter. As the disease is found principally among cattle and hogs, and as most of the infection in hogs is derived from cattle, the main effort should be directed against the disease in cattle. Among the measures proposed are the following: Live stock owners should be educated by means of official publications, the agricultural and general press, lectures at farmers' institutes. Public authorities should make a systematic effort to determine to what extent and in what localities the disease exists, and should apply the tuberculin test generally and systematically to cattle in sections where this seems desirable. Reacting animals should be slaughtered under competent veterinary inspection, so that the loss may be minimized by passing carcasses for food where the infection is so slight that this can safely be done; dangerous carcasses, of course, to be condemned. In the case of valuable breeding animals where slaughter would involve great sacrifice, the Bang system of segregation may be used. A system of tagging all cows sent to market is advocated, so that when animals are found tuberculous in the meat inspection they may be traced back to the place of origin, centres of infection located, and steps taken for eradication. The Bureau of Animal Industry is already co-operating with the authorities in some states in reporting and tracing the origin of tuberculous animals. Each state should require that all cattle brought in for breeding or dairy purposes shall have passed the tuberculin test.

"As the eradication of tuberculosis is largely a public health measure, it is only reasonable that the persons whose cattle are slaughtered should be paid indemnity, at least in part. This is not only just, but is absolutely essential if the co-operation of cattle owners is to be secured. Several states already have provisions of this character. The benefits to follow from the eradication of tuberculosis from farm animals are so great and so obvious that the necessary expenditures, even though they must be heavy, may be regarded as a highly profitable investment."

Other excellent papers on this subject were given by Dr. O. E. Dyson, Dr. W. H. Dalrymple, Dr. C. A. Cary, Dr. L. A. Klein, Dr. M. E. Knowles, Dr. George S. Baker, Drs. A. R. Ward and C. M. Haring, and by Mr. Jesse E. Pope.

The discussions on these papers were animated and brought out very interesting data on the subject, amongst those who participated in the discussions being Prof. Arloing of Lyons, France; Prof. Heymans of Ghent, Belgium, and Prof. Bang of Denmark, and the pleasure of the audience in listening to the expression

of views of such eminent men was manifest. It would require a very lengthy description to go into the details of the sessions and therefore only a very brief resume will be given.

At the third session, "The Pathology and Bacteriology of Tuberculosis" was the subject presented. Papers were read by Drs. W. Reid Blair, C. Y. White, Herbert Fox, E. C. Schroeder, Alfred F. Hess, Sesco Stewart, A. T. Kinsley, J. R. Mohler and H. J. Washburn. The discussions which followed were of the greatest interest and amongst those participating one could observe many noted medical and veterinary scientists and sanitarians of this and foreign countries.

In the fourth session, which was held jointly with Section I., "The Relationship Between Tuberculosis of Animals and Man," was presented, and as it was generally known that Prof. Koch was to open the series of papers, the large assembly hall with a seating capacity of 2,000 was provided for the occasion. Long before the meeting was called to order the hall was filled to its entire capacity and everybody listened attentively to the paper of Prof. Koch on "The Relation of Bovine and Human Tuberculosis," in which he practically repeated his statements of 1901. He went so far, however, as to admit that bovine bacilli may be found in certain forms of tuberculosis of man and he furthermore stated that he did not deny the possibility of one type of the tubercle bacillus becoming transformed into another type. He was followed by Prof. Theobald Smith, who read a paper on "The Relation of Human and Animal Tuberculosis," with special reference to the question of the transformation of human and other types of tubercle bacillus, in which he stated that about one-half of all the cases of tuberculous adenitis and abdominal tuberculosis of children was caused by bovine bacilli. Then the more strenuous opponents of the Koch theory took the stand and paper after paper was read in which absolute facts were presented which proved without a possibility of doubt that in many cases, especially in tuberculosis of children, the infection was caused by the tubercle bacillus of the bovine type. We refer to the papers of Prof. G. Sims Woodhead of England, Prof. S. Arloing of France, Drs. Fibiger and Jensen of Denmark, Dr. M. P. Ravenel, Dr. Nathan Raw of England, Dr. A. P. Lewis, Dr. Charles W. Duval, Dr. William H. Park, Dr. Charles F. Dawson, Dr. R. R. Dinwiddie, and Drs. Davalos and Cartaya also presented papers at this session.

It was late in the afternoon before this meeting adjourned, and the discussion was taken up the following day at a session at the New Willard Hotel, where about fifty noted scientists expressed their views on the subject. While there were no resolutions adopted it was almost uniformly recognized by all participating in this session that there is a real danger of human infection from bovines which should be recognized by all sanitarians. Moreover this view was crystallized in a resolution unanimously adopted by the entire congress on the closing day, as follows:

"*Resolved,* That preventive measures be continued against bovine tuberculosis and that the possibility of the propagation of this infection to man be recognized."

The fifth and sixth sessions were given to the diagnosis of tuberculosis in animals. This important subject was splendidly treated in the papers by Dr. A. W. Bitting, Dr. A. T. Peters, Dr. George B. Jobson, Dr. S. B. Nelson, Drs. D. S. White and Eugene McCampbell, Prof. J. Lignieres of Argentina, Prof. G. Moussu and Dr. Ch. Mantoux of France, and Dr. Burton R. Rogers. The papers were all ably discussed and in general tuberculin appeared to have received additional support as a reliable diagnostic agent. Prof. Arloing expressed his faith in tuberculin and stated that in all cases where a tissue reaction is obtained we can assert that there is a tuberculous infection of the animals. A negative finding on macroscopical examination of reacting animals does not mean the absence of the disease, as in such cases a microscopical form of the disease is present which can only be determined by inoculations into test animals. Prof. Heymans has also found that a large number of reacting animals fail to show any macroscopical lesions, but his experience proved that the disease in such cases is present, which to him is indicative of the imperfectness of the macroscopical examination. The "Control of Tuberculosis of Animals" was taken up in the seventh and eighth sessions, and this subject is probably of the greatest interest to all those who are occupied with the problem of tuberculosis. Prof. Bang presented his paper on this occasion on "The Control of Tuberculosis of Cattle in Denmark,"* showing the splendid results which have been obtained by his system. He could not see why the Bang method could not be followed in this country with the same advantages. Papers were also presented on this phase of tuberculosis by Drs. J. G. Rutherford, Austin Peters, C. J. Marshall,* Piot Bey of Egypt, John M. Deering, V.

* Published elsewhere in this number of the REVIEW.

A. Moore, M. H. Reynolds, D. Arthur Hughes, J. W. Connaway and Otto G. Noack.

The animated discussion of this part of the program required all the time allowed for the conclusion of the program, and there was still an important subject to be taken up, namely, "The Immunization of Cattle Against Tuberculosis," which was accordingly postponed for the following day, the subject being presented in two extra sessions. Dr. Pearson presented his method of immunization with which a relative immunity can be established in cattle and which protects the animals from the disease for from two to three years. Dr. Pearson was heartily congratulated on his success in this line by Prof. Bang and Prof. Arloing. Great interest was manifested in Prof. Heymans' vaccination against tuberculosis of bovines, which he not only described theoretically but also demonstrated the method with a splendid exhibit, and besides on live animals at the Experiment Station of the Bureau of Animal Industry at Bethesda, Maryland. All those who had the pleasure of seeing the professor demonstrate this method of vaccination were greatly impressed with its simplicity.

The remarkable success which he has achieved by his method in Belgium makes it seem very promising as a practical way of controlling that disease in animals. Thus far he has vaccinated over 40,000 animals, during a period of four years, and in some of the herds where previously to the vaccination 60 per cent. were tuberculous this number has been reduced in the mentioned period to 28 per cent.

This method will soon be given an extensive trial in this country in order to test its efficiency and also its practicability in meeting the conditions existing here.

It might also prove of interest to mention the excellency of the educational and pathological exhibition as there was never placed before the public a more complete exhibit than that presented at this congress. Of the total number of exhibitors, 312 were from the United States and 126 from foreign countries. Two hundred and twenty-two were collective contributions from associations, societies and other corporate bodies, and 216 were from individual members of the congress. Of the 222 collective contributions, those from the United States numbered 170, and those from Europe or from other parts of America numbered 53. Of the 216 individual exhibits, 142 were from the United States and 74 from other American countries and Europe.

The exhibition included demonstrations and clinics, accompanied by stereopticon illustrations and popular lectures. Of the pathological exhibits especially beautiful specimens were displayed by the Boston University, Pennsylvania Live Stock Sanitary Board, Phipps Institute, Canada, England, Germany, Iowa, Michigan, Cornell University, the Bureau of Animal Industry, etc.

Particular interest was manifested in the fresh tuberculous specimens exhibited by the Bureau of Animal Industry in long sanitary refrigerators with glass sides and tops. In awarding prizes for the above exhibits a special gold medal was given to the National Bureau of Animal Industry for having the best collection of pathological specimens at the exhibition.

Referring to the social side of the congress, the visiting members were well taken care of, and especially does this apply to the foreign delegates, as one of them remarked that, judging from the invitations to social functions, it appeared as if the local members thought they came here solely for social pleasure, with no other thought in mind. Receptions, dinners, banquets, smokers and other entertainments were in evidence all through the congress.

Especially elaborate was the banquet given by the Secretary of State to the foreign delegates. Then there was also a smoker at the New Willard Hotel, given by the members of the District of Columbia, which was attended by over 1,800. This proved a splendid opportunity for the foreign and American scientists to discuss affairs in an unconventional social way, and they were at the same time given a good example of democratic Americanism and American hospitality. A smoker was also given at the University Club by the veterinarians of America to the foreign visitors. On this occasion a social exchange of opinions was thoroughly enjoyed with our noted foreign confreres. There were present at the gathering Prof. Arloing of France, Prof. Bang of Denmark, Prof. Wladimiroff of Russia, Dr. Piot Bey of Egypt, Prof. Fibiger of Denmark, Prof. Heymans of Belgium, Dr. Freund of Germany, Dr. Eastwood of England, and others.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Discussion on Report of Committee on Intelligence and Education.

The interest manifested by the profession generally in the report and recommendations of the Government Committee on Veterinary Education, appointed by Secretary Wilson, to in-

vestigate the veterinary colleges of the United States, is so great that we are printing in the following pages the stenographic report of the full discussion of the report of the Committee on Intelligence and Education,* by Dr. Tait Butler, before the forty-fifth annual meeting.

Dr. Tait Butler: Mr. Chairman—I do not wish to take up the time of the association, but it seems to me necessary that something further be said on this report. I am in the unfortunate position of having been one of the members of the committee appointed by the Secretary of Agriculture and also of having been delegated by the committee to make any remarks that it might be necessary to make in this convention regarding this report, and I want a little time, if you will bear with me, to discuss some of the remarkable, even marvelous statements which have been made in this report on "Intelligence and Education."

I want to say that there is much of this report which I endorse and much which is on a high plane for which the chairman is to be congratulated, but there are also many statements made in connection with the report of the Committee on Veterinary Education, appointed by the Secretary of Agriculture that I must take exception to, and I shall endeavor to discuss them on as high a plane as has been adopted by Dr. Pearson.

The first criticism was that no statistics of the different colleges were published. My own opinion is that the committee obtained information that it would not be practical to publish; that the committee obtained information which it was necessary for it to have in order to do the work it was instructed to do, which it would not be proper to publish. I do not believe that such statistics as enumerated by the chairman of the Committee on Intelligence and Education would be of any material benefit to any man in judging of the standing and the position of the veterinary colleges. That is, I believe our committee had more information than the statistics asked for by Dr. Pearson would supply and that we had sufficient information to judge of the merits of the schools.

Now, then, as to the courses of study. Dr. Pearson has paid himself the compliment of saying that the course of study outlined by Secretary Wilson's committee was modeled after the one which he suggested last year. While this is plainly not so, I won't hurt his vanity by saying it was not; but if it was

* Report of Committee published in October Review, page 91.

so modeled, is it not remarkable that it should receive such severe criticism from its real author?

Dr. Pearson tells us that if the course that is recommended in this report is maintained all of the colleges will have to change to comply with the letter of the law. I want to say candidly and frankly to the members here, and I say it without prejudice, that there is not a single one of the colleges but what ought to change. (Applause.) There is not a single one of them that will not be benefited by making these changes wherever they fall below the recommendations of this committee. Dr. Pearson seems to see serious trouble ahead, if the colleges are required by the Department of Agriculture to comply with the "letter" of the recommendation of the committee appointed by Secretary Wilson. There is no danger in the enforcement of these recommendations. "You can't enforce the letter of the law" is simply a favorite expression of people who want to mystify their hearers. Why, gentlemen, no general law was ever promulgated that was ever enforced to the letter. It is not practical to do it. It is not done. The main purpose of the administration of such a law is for the general good. Justice is the cardinal principle of the administration of all law, and it is not possible nor practical in every case to enforce a general law to the letter. It is absurd to object to any law, and certainly to such a general one as this, because the letter of it cannot be enforced. You would object to all law if you did, for all laws are broken and none enforced to the letter.

Now, then, I do not know what the Secretary of Agriculture will do regarding the carrying out of the recommendations of his committee. I do not know what his advisers will do, but I believe that he has it within his power to command the services of men that are just and (I hope Dr. Pearson will pardon me for saying it) as competent as any of those who are criticising him for his actions.

Now, then, we come to what Dr. Pearson calls the essence of his contention; namely, that the Secretary had not the right to do what he did. Gentlemen, if you followed the reading of that report closely you will have observed that in one place it was stated that he had not the right to do a certain thing; and then in a few sentences afterwards it was deliberately stated that he did have the right to do that same thing; that he had not the right to say what the length of the course should be, and then it was admitted that he did have the right to say what

courses, and what the length of the courses should be for the employees of his department. Now, gentlemen, it seems to me that we might just as well, right now, thoroughly understand what this report really is, what were its purposes and what its aims. All that the report purports to be is a measure for judging the colleges or a minimum standard for the guidance of the Secretary of Agriculture in the selection of men for employment in his Department. That is all it is and all it was intended to be. How can there be any question of the right of the Secretary of Agriculture to fix a standard of qualifications for the employees of his own Department? It seems to me that any other view is ridiculous.

It is true that Dr. Pearson has admitted this, but in the next breath he has denied it. For instance, it is stated that he did not have the right to say how anatomy should be taught, and in another sentence it is admitted that he did have the right to require that it should be taught to applicants for employment, in a *competent* way. Dr. Pearson also tells us that the committee was not competent to say how anatomy should be taught, but I am of the opinion that the committee was as competent to say how anatomy should be taught as Dr. Pearson is to judge of the competency of the committee, for on that committee was a man who is recognized as one of the best teachers of anatomy on the American continent, and a man who has been teaching it longer than Dr. Pearson has been in the veterinary profession. Is Dr. Pearson justified in saying that this man did not have knowledge of how anatomy should be taught? If it is within the province of the Secretary of Agriculture to say that anatomy shall be taught his employees, then it is within his province to say how it shall be taught and how much shall be taught.

The committee did not need Dr. Pearson to tell it that the laboratory method of teaching is the best one, but the committee had knowledge which Dr. Pearson evidently has not, that there are schools giving only fourteen hours a year, and forty-two hours in the whole course, to dissections. Must the Secretary accept graduates of such a college or shall he give out advance information that unless a certain stated minimum of dissecting be done such graduates will not be eligible to employment in the Department? If many colleges had not been found very deficient in laboratory teaching no minimum would have been suggested by the committee for the guidance of the Secretary in judging whether applicants for employment had received adequate training.

Now, then, the whole thing seems to devolve upon this point, has the Secretary of Agriculture a right to lay down a minimum course or standard which applicants must conform to in order to be eligible to employment in his Department. Dr. Pearson says in one sentence of his report that the Secretary of Agriculture has that right, and in another that he has not. I rather believe him when he says that the Secretary has the right. It seems to me that he clearly has such a right and that Dr. Pearson himself has shown that it is a right which cannot be questioned.

Is the Secretary of Agriculture dictating how the colleges shall lay out their courses of study, or unlawfully controlling the colleges, when he gives out information as to what the courses should be to fit men for employment in his Department? He does not say to the colleges, you shall do this or that, but he does say to the prospective employees, you shall be adequately trained as judged by the reasonable standard which my committee has recommended.

On the face of it this criticism is factious, for the Secretary of Agriculture has done nothing more than to simply give out advance information to the colleges of the United States respecting the educational requirements he intends to demand of the employees of his Department, and what training they must have had in order to be eligible for appointments in the Bureau of Animal Industry.

Surely it is better for the schools, surely it is better for the veterinary profession that the Secretary of Agriculture state in advance, frankly and clearly, what he is going to insist upon from his employees. Is it not much better that he should state it in advance so that all may know what the qualifications are to which they must conform? The report of the Committee on Veterinary Education, appointed by the Secretary of Agriculture, is not an attempt to fix a standard for any veterinary college, but merely an attempt to show the least educational qualifications that the Secretary will permit his employees to have received.

It is admitted that this report of Secretary Wilson's Committee will do good to the schools of lower grade, but it is mysteriously hinted that it will injure and lower the standard of the better schools. Now, I am extremely interested, gentlemen, in knowing how this report is going to injure the better class of schools and colleges. It was hinted at yesterday in the discussion that we had at the meeting of the Association of

College Faculties and Examining Boards and hinted at again here to-day, and yet we have been given no clear, frank statement of how it is going to do it. The chairman of the Committee on Intelligence and Education appears to imagine that there is something in the report of Secretary Wilson's committee that is in some mysterious way going to lower the standard of those schools which claim to be superior institutions, but I would like to know how it is going to do it. Is it going to injure them to make them strengthen their weak points? If it makes them strengthen their weak points isn't that a benefit, even if it is some inconvenience? Certainly, it is hard for anybody but the head of one of these schools or colleges to see where the injury is to come from. It seems to me that any reasonable man must agree that whatever is going to cause the veterinary schools and colleges to strengthen their admittedly weak points is going to be for the great benefit and uplifting of the veterinary profession.

The next point of criticism that I wish to discuss is that of requiring five veterinarians on the teaching staff, not more than three of whom shall be graduates of any one school. Now, gentlemen, I wish to consider this frankly and candidly. Can you make a rule that will fit all conditions? You cannot. Then must you refrain from making such rule if it is needed and will do very much more good than harm, even if it be admitted that any harm will come from it, which I do not believe is so. If you do not make a regulation of this sort are you going to make one that will avoid putting certain institutions to a little inconvenience, or are you going to make a rule that will be beneficial to the greatest number? Is it individual schools that you are going to consider or is it the schools as a body, or the majority of the schools that you are going to try to elevate? That is a point that you have to keep in mind in considering this report or any other general proposition of a similar nature. Now, it is a well known fact by every man who is familiar with the conditions in the veterinary colleges in the United States to-day that the chief sinners in the violation of this regulation are some of the state colleges, that they take their own graduates immediately after graduation without experience or sufficient training and fill up their faculties with them. Do you think that the Secretary of Agriculture has not the right to say that they shall not do this if their graduates are to be employed by his Department? Has not the American Veterinary Medical

Association said that they shall have four veterinarians on their faculties? Haven't you established the principle right here in the American Veterinary Medical Association that the Secretary of Agriculture has the right to require that the faculties of American veterinary colleges be up to a certain minimum standard if the graduates of those colleges are to receive employment in his service? If we have the right in the American Veterinary Medical Association to do this regarding our membership, pray tell me why it is not right for the Secretary of Agriculture to do the same regarding his employees. It is a fact that I grant Dr. Pearson fully, that a teacher coming back to his alma mater after years of study and training elsewhere, may be the best man for that institution. No one will deny that, but we have said that he ought to have three years 'experience before he is put on the faculty of his own alma mater. Furthermore, while you may find one or two instances in the United States where these rules will hurt a good man, still for every case that you name where a good man is hurt I will name you three where the institutions will be benefited thereby. Right here today there are many men within the hearing of my voice who know that one of the greatest difficulties that the schools have had in maintaining a proper standard of education has been their inability to get good, live, new blood into their faculties, and that the chief reason for this difficulty is that those in control of most schools will not put the money into the institution necessary to get other than their own recent graduates. If this association and the American veterinary profession will support this single rule it will eventualy do a vast deal of good for every one of the schools, because I tell you there is not a school in this country that does not need some new blood on its faculty, that does not need to get outside ideas, that does not need the stimulus that comes from getting into contact with men educated in different institutions. And I want to say to you, gentlemen, that some of these schools, that have assumed to themselves the great superiority that we are continually hearing about, need a few outside men and some new blood in their faculties. Now, gentlemen, if you have the interests of the American veterinary profession at heart more than personal considerations you will back up this clause of the report of Secretary Wilson's committee. It is essential to the broadening and upbuilding of our institutions. I have been at the institutions in this country and I know the facts that I have stated are true, and so do you

know that they are true. Then why not correct the difficulty, even though one or two schools may imagine they are inconvenienced thereby.

Now, then, after being told that the Secretary of Agriculture did not have the right to say what the length of the courses should be, or to say what the subject taught should be, or how they should be taught, we are told that he has not the right to inquire how prospective employees got their training, but it is sufficient for him to ask have they the required information. This association has adopted the principle which Dr. Pearson repudiates; we have said what the course shall be for eligibility to membership and shall we deny the Secretary of Agriculture the same rights? Moreover, how on earth is he going to look into this matter, or judge of a man's competency unless he has some standard by which to judge the qualifications of applicants for employment in his Department? Gentlemen, you judge nothing except by comparison. It is simply arrant nonsense to talk about judging these colleges without first fixing some sort of a basis by which to judge them. How is it possible to judge if the training a man has received qualifies him for a certain position unless you have some information of the course of study he has covered and also a well-defined standard or idea of what he should have? Now, that is all the Secretary of Agriculture has done, and it seems to me that any man by reading the recommendations can see that this and nothing more is the purpose of the minimum course of study and requirements adopted by the Secretary of Agriculture. And it seems to me that any man must also know that there is nothing in that report to prevent any college going as far above the minimum as it shall see fit to go.

It may occasionally inconvenience certain individuals and institutions to insist that veterinarians teach veterinary subjects, that a veterinarian shall have had three years' experience before being assigned to the teaching of major veterinary subjects; and that the colleges shall not fill their faculties with their own inexperienced and recent graduates, but the general effect will be of great benefit to veterinary education in America, for there is no man in the United States so big or so great that you cannot find another one that is just about as big and just about as great. We heard yesterday and now again to-day that the state schools are to be the great institutions in the system of veterinary education in this country. I believe it is so, but it is also so

that in the past they have been the worst sinners in taking up their own cheap recent graduates and giving them professorships. The private schools to-day are picking up men, good men, and paying them better salaries than the state schools, and every one of you know it. Why not come out frankly and say that you do not like this rule because you have not had the money to enable you to comply with it. But, gentlemen, if the state schools will not do this themselves, let us help them do it, let us help them do something which will make them what some of their friends claim they are, the real shining lights of the veterinary educational institutions of this country. They are doing good work, many of them; I am far from saying that they are not, but they are not doing all of the good work, and if they are going to claim all the credit and assume to themselves such superiority, then let them be possessed of it and let them pay the money necessary to get superior men.

In all the criticisms of the recommendations of the committee appointed by Secretary Wilson, which I have heard here or elsewhere, there has not been a single remedy offered for in any other way correcting the real defects in the colleges which we sought to correct by our recommendations. Not one recommendation was made except for the purpose of correcting an existing vital defect, and while it has been intimated that these recommendations were made without adequate consideration and knowledge, I wish to state that I have not heard a criticism from any source during the meeting yesterday or in this report of Dr. Pearson's that was not made, carefully considered and fully discussed, pro and con, by the committee during its deliberations. No one has denied that the defects which we sought to correct are real and vital defects and no one has offered any other remedy for correcting them.

We are told that it is not a question of how the schools measure up to the standard of the Secretary of Agriculture, but of how they measure up to their own standard. I am not certain that I know what is meant by that, but if you had seen some of the standards that they are maintaining, such as I have seen in the last year, you would want them to measure up to a higher standard than many of them have maintained in the past.

I want to say, gentlemen, that I believe as fully as any of you that we have been doing a good work in the American Veterinary Medical Association and in all of the other organizations related thereto. We have done a great deal in the last

twenty-five years, and substantial progress has been made up to the present time, but you know how often it has been the case during that period that the state boards have not been able to get together and accomplish what they wanted, and you also know that the colleges themselves have not been able to come up to the standard of this Association as rapidly and speedily as we hoped. We have accomplished a great deal towards bringing them up to that standard simply by the adoption of a regulation that the qualifications of applicants for membership in the American Veterinary Medical Association should conform to a certain standard. Now, then, is not this report of the committee appointed by Secretary Wilson a step in the right direction? This report does give us some basis for the schools to work on and it does give the Secretary of Agriculture a standard for judging the schools so far as the training of veterinarians for service in the Department of Agriculture goes. It will serve to bring the lower grade schools up to a certain higher basis, that is all it means. Does anybody really suppose that the Secretary of Agriculture ever had such an absurd idea as to attempt to make uniform the schools? The colleges still have the same right that they always have had to lay out their courses of study as they see fit, providing they at least comply with this minimum standard of the Secretary of Agriculture, and they need not even do that unless they wish their graduates to be eligible to employment in the Bureau of Animal Industry of the United States Department of Agriculture.

It is not an unlawful attempt of the Secretary of Agriculture to force the colleges to a uniform standard. It is as plain as the nose on a man's face that the object of this report was to find out what the schools were doing, and then, when in possession of that knowledge, to make certain recommendations for the guidance of the Department which would help it in securing men of the necessary efficiency. Now, gentlemen, you may criticise the committee as much as you wish, we expected that, but I want to say that the committee has information that even Dr. Pearson, with all his wisdom, does not possess regarding the schools of North America. It has facts in its possession which Dr. Pearson never could get unless he was backed up by official authority from the Secretary of Agriculture. Now, in the light of all that evidence, and in the light of all the evidence which has been gathered together from all sources, the committee made up its report, and I want to say to you emphatically

that it did not put out a report without full knowledge of the facts and existing conditions, nor without full consideration. As to the competency of the committee, I am for obvious reasons not at liberty to speak. The Secretary of Agriculture and the veterinary profession may judge that question for themselves.

Now, gentlemen, all I want to say is that with all the progress which has been made in the last twenty-five years, it is not equal to the progress which has been made since June 1, 1908. I call upon the heads of the veterinary colleges of America here to-day to stand up and refute or back up that statement. I am not afraid of the result. The Secretary of Agriculture has done more in the last six months to elevate the standard of veterinary education, to build up and complete laboratories in our colleges, to extend the courses of study, to secure more proficient faculties, to raise the requirements for entrance and the standard for graduation than all the work of the previous ten years has done. Now, I ask you members of this serious, deliberative body, this body of men banded together for the promotion and the betterment of the veterinary profession in America, are you going to send this report of Dr. Pearson's to the Secretary of Agriculture condemning the report of his committee, and send it with your hearty approval and undo the work that has been done, or attempt to do so? I ask you to consider it seriously before you vote on that question. I am perfectly willing for and I would like to see Dr. Pearson's report put in the hands of the Secretary of Agriculture. I would like to see that done, for I know it will be ruthlessly analyzed and torn to pieces to a greater extent than I am able to do on the spur of the moment and in the short time at my disposal. I want to see that report go into the hands of the Secretary of Agriculture, but I do not want this association to say that it gives it its hearty approval because I do not believe the profession, or the rank and file of the membership of the American Veterinary Medical Association, feels in any such way about it. I do not believe that they for one moment would give this report of Dr. Pearson's their hearty approval.

In conclusion, I want to say that right at this hour the American Veterinary Medical Association, and the profession as here represented, has the opportunity to do more for the elevation of veterinary education in America than any other body ever had in its power to do during the entire history of the profession. You can throw away the opportunity or you can back up this advance that has been made. If you take this stand for ad-

vancement I need not tell you our great schools of veterinary science, like the University of Pennsylvania and Cornell University, will not be hurt, for no one man is sufficiently great to kill or cripple a school. Therefore, gentlemen, in conclusion, I want to move an amendment to the amendment that this report be sent to the Secretary of Agriculture, simply transmitted to the Secretary of Agriculture, without approval or disapproval, and along with it the discussion which follows.

The amendment to the amendment seconded.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The eleventh bi-annual meeting was held at Duluth, July 8 and 9, 1908, with President Amos in the chair. Forty members answered to roll call.

President Amos introduced Hon. Mr. Hayden, Mayor of the city of Duluth, who spoke as follows:

"MR. PRESIDENT AND GENTLEMEN OF THE ASSOCIATION.—On behalf of the city I wish to extend to you a most hearty welcome and I trust that your stay in our city will be marked by incidents of pleasure that you may take away pleasant recollections of this week. It is unnecessary for me to call your attention to our city because before you get through, under the guidance of the local representatives of your association, you will probably be introduced to all the points of interest. It is natural for each and every one to stick up for his own town. This reminds me of a story of St. Patrick's day parade in London. One Irishman going down the street feeling pretty good, said: 'Hurrah for old Ireland.' An Englishman said: 'Hurrah for hell.' The Irishman said: 'That is right, Every man for his own country.' That is like us in Duluth.

"I am sure you have come to our city in a good time of the year, and you won't be inflicted with rain and other disagreeable propositions that we have in the months preceding this one, and I believe that you will say after leaving our city that we have at this time of the year the best climate to be found. While they are sweltering in New York, as I read in the paper this morning, you who were here last evening were able to sleep under cover and sleep sound, and I am sure every man here has a

clear conscience, so he will have no trouble on that account. I am sure matters of great importance are coming before the meeting and you are probably all busy men and want to get out and see what is here.

"I am glad, indeed, of the honor of welcoming you to our city. Gentlemen, I extend a most cordial greeting" (Applause).

President Amos responded to the Mayor's address in a few well-chosen remarks.

The minutes of the previous meeting were then read by the secretary.

Dr. Leech—I understand that the committee on by-laws and constitution, since the action taken at the last meeting on that set of by-laws and resolutions adopted at that meeing, has asked for an extension of time, for changing that constitution, and that has been granted outside the meeting. I move the adoption of the minutes, as read, with the extension of time. Motion seconded and carried.

President Amos' Address.

The President then read his address, as follows:

"The eleventh semi-annual meeting of the Minnesota Veterinary Medical Association is to be congratulated and the members may well feel like congratulating themselves on the opportunity afforded us by the generosity of the citizens of the metropolis of the Northwest, a city a mile high and several miles long. We could not have selected a better place for the semi-annual meeting of the state association; and I am safe in saying no place has made such arrangements for our accommodation, as to the professional, literary and business parts of the meeting, and also the social features, as we will find out before the time has come to say good-bye, shake hands and leave for our various homes. I am sure we will feel like shaking hands with Duluth, and the home committee of entertainment, and joining in singing, 'They are jolly good fellows,' and be unanimous in expressing the home that Duluth will extend another invitation and say, 'Come again.'

"'All work and no play makes Jack a dull boy,' and I am sure the members of this association are fully able to enjoy a good time.

"The object of this eleventh semi-annual association meeting was intended to be both literary and social and for that end the clinical part has to a great extent been cut out so as to make room for a little more social enjoyment and intercourse than

heretofore. We are short-sighted indeed if we cannot see the benefit derived in coming in closer contact with one another in a social as well as a professional way, and for that reason the second day of the meeting has been given mostly to our enjoyment.

"My remarks will be short as there is not much for the president to touch on at this time. All work seems to be progressing in a most satisfactory manner. Our different boards all report 'a flourishing condition.' The State Live Stock Sanitary Board and the State Veterinary Association are indeed to be congratulated in the return to our midst of one whose departure from our state a little over a year ago we were sorry to chronicle. We are all glad to have Dr. Ward with us again and we extend a hearty welcome to him, and are glad that he has become one of us in person, as we know he has been in mind.

"As to the profession, it is encouraging to note that every step is marked with progression. We are receiving a high type of young men into the state association. The eyes of other states are on Minnesota, copying our veterinary and sanitary board laws and regulations. Our examining board is doing good work and working in closer touch with this association than ever before.

"It ought to be a matter of congratulation for the veterinary profession that the state association has been recognized by the state agricultural association, and we now have an equal voice with other associations and agricultural societies in the management of the State Fair; and, by the way, this recognition will, I think, necessitate a change in the articles of our incorporation. In article three (3) it reads, 'The purpose and object of this association shall be the cultivation of the science and art of veterinary medicine, etc.,' and right here we want, 'and promotion of live stock industry,' or something to that effect.

"The veterinary profession should be interested in the announcement that an effective hog cholera vaccine has been perfected which is prepared by our state experimental station. This is the vaccine that has been worked out by Dorset and Biles of the Federal Bureau of Animal Industry.

"The profession of the state and nation has met with a severe loss since our last meeting in the death of Dr. R. R. Bell, editor of the AMERICAN VETERINARY REVIEW, to whom we are all indebted for his untiring labor in the advancement and elevation of the veterinary profession.

"As we have considerable business to transact and several good papers to be presented and discussed, I will occupy no more of your valuable time. Gentlemen, I thank you."

Report of Committee on Infectious Diseases.

Dr. Whitcomb—This report is rather brief; it is for the last six months. The work with tuberculosis resulted as follows:

	No. Tested.	Reacted.
	17,136	1,462
At South St. Paul	668	16
Importations	994	8
Totals	18,798	1,486

Glanders.

Number of horses inspected	1,234
Number killed on inspection	36
Number tested after inspection	929
Reacted when tested	224
Number killed after test	179
Quarantined	52
Reinspected	186
Number killed after reinspection	39
Total killed	244

Anthrax.

Three animals died at Hastings in June. Dr. Beebe investigated this report and it was found on laboratory examination to be anthrax. In previous years animals died probably of this same disease. Last year seventeen cattle died, and the year previous seven cows and one horse died. The herd was vaccinated with Parke-Davis anthrax vaccine.

If you wish to ask any questions concerning this outbreak, I think Dr. Beebe will explain it.

Hog Cholera.

There are practically no reports at the present time of hog cholera, and very few have been received during the past six months. The Bureau of Animal Industry reports in Bulletin No. 102, concerning the production of immunity from hog cholera, would lead us to believe that the results obtained show quite clearly that a comparatively certain method of protecting hogs from hog cholera has been secured, and it is strongly be-

lieved that this method will be of great service in combating hog cholera. It is also very probable that it can be used successfully as a curative agent if administered in the early stages of the disease.

President Amos—You have heard the report on infectious diseases. Are there any questions you wish to ask Dr. Whitcomb?

Dr. Lyford—I would like to ask Dr. Whitcomb about this new treatment, and whether he has seen any of it tested, and at the same time give us a little of the technique as well as the theory.

Dr. Whitcomb—I think Dr. Reynolds can give us that, as he has been experimenting quite extensively at the farm.

Dr. Reynolds—There are two methods, one which we may call simultaneous, and the other serum only. The simultaneous consists of virulent blood and "serum only," injected separately into the two thighs at the same time; that is giving the animal hog cholera and an antitoxin for it at one treatment. The double vaccination is to be used where there is some time available, that is, if there is an outbreak of hog cholera; the simultaneous method could be used on the adjoining farms where the disease has not appeared. The serum only is used where protection must be immediate. For instance, a man has had one or two die and the serum only is used to protect the remainder of the herd, with the expectation that a considerable number of hogs are not infected, or if infected, the disease is not advanced to a stage beyond which the serum may protect. The process of developing the serum is this: A hog that is immune from cholera is given increasing doses of virulent blood, first 1 c.c. per pound, live weight, then 2½ c.c. and then 5 c.c. He gets in three injections 8½ c.c. for every pound of live weight, an enormous quantity of virus. The hog is thus hyper-immunized. It is bled at the tail about four times and about 450 c.c. taken each time. This is clotted; the serum is removed by pressure and preserved with one-half of one per cent. of carbolic acid. It has been demonstrated that serum after two or three years is as efficient as when first made. Every lot of vaccines must be tested as to potency and it is necessary to sacrifice at least one check pig in each test of potency.

We did some work with this at the station last fall, using shoats. In one lot we put eight which were given the simultaneous vaccine, and with them three unvaccinated pigs to test

the point whether there is any danger of spreading disease by this vaccine, which is in part virulent blood. None of the checks developed hog cholera, although associated with the hogs that were so vaccinated. In another pen we inoculated three shoats with virulent blood and put with them check shoats and those all died with hog cholera, proving the virulence of the blood used in the inoculating process. We have seven of those simultaneous vaccine hogs that have been through three exposures. We had them at the Fair Grounds and then at the University Farm, and on an adjoining farm. We divided the sick University Farm hogs into three pens and put one simultaneously vaccinated, one serum only and one check in each pen of sick hogs. Two of the checks died. The six vaccinated survived in perfect health and grew every day. Later we put seven vaccinated on the Carling farm where the disease was so virulent that they lost 39 out of 42. Our seven vaccinated hogs grew and thrived every day. They were there from April 1 to the 15th of June, shut up in the pens with the Carling hogs. I have them at the veterinary building now, and propose to use them for hyper-immunes. We hope to produce some vaccine this fall and a large quantity next year. It is the plan to distribute the vaccine this fall gratis where it will accomplish the most good. We propose to sell it next year at cost of production.

Dr. Lyford—How much serum do you require for a dose?

Dr. Reynolds—The dose is 20 c.c. There are several points to be perfected. One of the things to be accomplished is to increase the potency so a smaller dose will give immunity.

Dr. Cotton—Do I understand that the dose will insure a permanent immunity?

Dr. Reynolds—Permanent for a hog; that is, for a year or two. Serum only is supposed to give immunity for only a few months. This is one of the things not yet worked out.

President Amos—Any other questions on the report of infectious diseases? If not we will pass to the report on legislation by Dr. Cotton.

Report of Legislation Committee.

Dr. Cotton—I think that has been pretty thoroughly gone over. All we can do is to watch during the next legislature and see that there is no unpleasant legislation attempted.

President Amos—The next report is that on bacteriology by Dr. Beebe.

Report on Bacteriology.

Dr. Beebe—My report at this meeting will be rather brief. I have kept careful watch of the literature but have not been able to find much that was of practical interest to the veterinarian. There is one that I would like to bring up although not belonging to bacteriology, and that is that A. C. Crawford has recently discovered the cause of loco poisoning. Of course, this poisoning does not exist in this state, but is of practical interest to veterinarians. He has been able to isolate barium salts from the weed and found that this is the cause. He has been able to produce the disease by giving barium salts for some length of time.

Recently there was an article in a French journal that states that Negri bodies have been found in the salivary glands. A great many people have tried to demonstrate these structures in the salivary glands, but only recently have they been able to find them.

I would also like to mention the cuti-reaction for tuberculosis. I referred to this briefly at a previous meeting, stating that it had been tried but failed to find it successful in animals, although in the case of human it is quite extensively used for diagnosing tuberculosis, and at the present time there are large establishments putting out tuberculin in this form to be given either as a cutaneous application or by the ophthalmic method. This method has also been tried extensively in cattle, but as yet it has not proven of much benefit. That is they find that it is not very reliable. In some cases they will get a reaction where an animal is tuberculous and a great many times they will not get a reaction where, by post mortem examination, they find the animals badly infected.

I would also like to say a word regarding the outbreak of anthrax in this state. This occurred about five miles below Hastings on the Mississippi River. The land is located on flat ground that is overflowed by the river every year. Before the Mississippi River gets down to this point it receives the St. Croix and also Minnesota, so that of course a carcass could be brought from a long distance above and might be landed on this ground. In all probability that is how the infection originated at that place. I imagine they have had this disease on this farm for several years, at least in the last three years they have been losing cattle. Three years ago they lost seven head and a horse, last year seventeen head died and this year three. I made positive diagnosis by cultures and also by animal inoculation and

so there is no question as to whether or not it is anthrax. The cattle were vaccinated immediately after making a diagnosis and as yet there have been no more cases. The ceasing of the outbreak might be due to two things. It might be due to the vaccine, or to the fact that this pasture was flooded right after these cattle died so they have not been able to get the cattle on low ground since.

Dr. Lyford—I would like to ask Dr. Beebe if they have decided upon any treatment for loco poisoning?

Dr. Beebe—No, they have not.

Dr. Lyford—A great many people have written from the west asking what we know about it and if there is any treatment.

Dr. Beebe—No, they have not tried any treatment. They have only been able to demonstrate the poison that is present in the loco weed.

Dr. Price—Is it in rabies that they find negri bodies in the salivary glands?

Dr. Beebe—Yes.

Dr. Price—In regard to barium salts, the brick companies use it in bricks. A great many of their horses die from it and I might say that a physic of barium will produce inflammation of the bowels, and in loco poisoning you would have inflammation of the bowels.

Dr. Beebe—We know that barium is a purgative when given in small doses. Dr. Pearson published a paper some time ago and he advocated giving it in 10 or 15 doses, hypodermically, and we would expect giving it in teaspoonful doses to produce inflammation of the bowels. You do not get these symptoms unless it is given for a continuous period for several weeks. After several weeks you should get the production of these symptoms.

Dr. Cotton—In regard to the testing of cattle for tuberculosis by tuberculin being placed in the eyes I would like to inform the association that Dr. Dyson told me last winter that the Chicago Board of Health were using it as a test on cattle located in the city limits, and he rather smiled when he said it, but they were getting very satisfactory results. I asked why they were using it in place of the old test and he said it was cleaner, quicker and they could get over more ground.

Dr. Leech—Was it satisfactory to the board?

Dr. Cotton—It was satisfactory to the health commissioners. Dr. Dyson is not a member of the board.

Dr. Leech—Were they satisfied that they determined the disease from what the post portems showed?

Dr. Cotton—He did not go that far. They are using it on cattle in the city limits.

Dr. Leech—It is a very clean way and would save time, but the question of reliability is another question to take into consideration.

President Amos—Any other remarks. If not we will proceed to the next paper. The report on medicine by Dr. Price.

Report on Medicine.

Dr. Price—Recent literature gives us reports of the fight against tuberculosis amongst our dairy herds. Claims of considerable progress are made by German practitioners, especially for the recent modification of vaccination with "Bovo-vaccine," which is termed "Tauruman." It consists of human tubercle bacilli which are supplied in a perfectly fresh state, suspended in physiological salt solution. The injection confers immunity on cattle, which has been demonstrated by a great number of trials. It requires four weeks at least to confer immunity. Animals already infected become rapidly worse if vaccinated with "Tauruman," as also those suffering from pneumonia.

Exposure to infection from bovine tuberculosis must not be permitted for three months following vaccination. The usual precautions against infection of calves is to be observed. The period of immunity following vaccination with Tauruman is not stated.

The use of Aphrodine or Yohimbin Spiegel for the purpose of stimulating the generative organs in both male and female, where impotence exists, has received strong endorsements. Its expense makes its general use at present prohibitive in many cases, as there are certain subjects that are not benefited by it, and others of long standing require its continuous use for some time. Individual response also has to be studied in regard to dosage. Cuti-malleination has been tried with claimed success, but with greater by ophthalmo malleination. In man mallein diluted to 1 to 10 in carbolic solution is applied to fresh scarifications, if affected with glanders. A reaction occurs after twenty-four hours, and on the second day, swelling and hyper-sensibility with great itching. Between the second and third day the reaction is at its maximum and a citrine serosity oozes from the swelling. On the third to fourth day the swelling subsides. There

is desquamation on the fifth day. The skin remained red for some weeks. Reaction occurs even after a long time in man.

The same method is used for diagnosing tuberculosis.

Cancer in animals seems to be much more common than is generally supposed, and is being investigated by scientists and even by several governments, with a view to elucidating its causes and if possible discover a cure. So far no reliable remedy has been found. The incriminating agent is unknown.

Infectious anemia in horses has been observed in Alsace-Lorraine and adjoining parts. The various secretions and excretions of the body of affected animals conveys the disease. The blood and serum in small quantity will give rise to infection, when administered subcutaneously.

Dorsett and Niles of the Bureau of Animal Industry have prepared a vaccine for hog cholera that is claimed to be effective, as an immunizing agent.

The use of serums in infectious diseases is gaining headway. In cases of umbilical infection in calves and colts good success is claimed by Dr. Peters for antistreptococcus serum if used early. In furunculus, carbuncle of the coronary band or gangrenous dermatitis its use is also indicated, as well as in any infection due to streptococci or staphylococci.

Bursatti or Summer Sores.—As a preventive arsenic and iron have proved effective in a number of cases which have been treated in my private practice—given internally and applied locally.

Coley's Mixture is recommended by Dr. Lyford in cases of osteo-porosis or big head.

The administration of oxidizing agents in azoturia is again urged by me as the proper treatment for the disease, which convert the catabolic products and toxins into substances that are inocuous and suitable for excretion, such as uric acid, etc., the sulphates, adrenalin, chlorates, acids, uranium, nitrates, etc.

Tetanus is another disease in which these agents are indicated, especially when administered intravenously, the local wound being treated with hydrogen peroxide, bichloride of mercury, and iodine, alternately. Intravenous injection of solution of oxidizing agents, I believe, will cure this disease even in apparently hopeless cases.

The administration of drugs by means of electricity promises great results. Life and electricity are an inseparable combination, and many seemingly incomprehensible life processes will be demonstrated before long.

Report of the Board of Directors.

The board reported on applications for membership, as follows:

Applicants recommended for active membership—Drs. O. C. Selbey, M. J. Guidinger, C. A. Nelson, E. H. Sayer, F. J. Flanagan, A. J. O'Hara and H. C. Plapper.

The application of Dr. P. Bailey is recommended to be laid over until the January meeting.

The application of Dr. McDevitt be rejected.

It was moved, seconded and carried that the report be accepted, the by-laws be suspended, and the secretary instructed to cast the ballot for the election to active membership those names which the board recommended.

The secretary then cast the ballot as instructed.

Announcement by Dr. Annand, Chairman of Local Committee.

Dr. Annand—We have decided, of course, at your own suggestion, that the first day be devoted to papers and general business of the association, and on the second day, on which we usually have a clinic, we will have for recreation, so that we will get acquainted with each other. To-morrow morning at 9.30 we will leave the hotel for a boulevard drive along the hill, and you can see the lake and all parts of Duluth, the docks, harbor and the elevators in Superior and West Duluth. You can even see the St. Louis River, and at 1.30 in the afternoon we will take a boat ride to Fon du Lac, up the St. Louis River, which I think is one of the finest trips any of you ever had from the standpoint of scenery.

At 7.30 p. m. there will be the banquet. We wish all to stay for that part of the program.

Most of the ladies have decided to go to Minnesota Point to-day and from there to Lincoln Park, which we are very proud of.

A motion was made to adjourn until 2 p. m., which was seconded and carried.

Report of Committee on Colleges.

M. H. Reynolds, Chairman—Some time ago I addressed a letter to veterinary colleges inviting the secretaries to report anything in the way of news items concerning their institutions which might be of general interest to a state association, includ-

ing such items as freshman class of last year as compared with class of year before; number of graduates for 1907-1908; number of students that failed to graduate; changes in faculty; plans with reference to improvement in matriculation requirements, etc. Reports have been received from a portion of these institutions.

Dr. J. H. McNeil, dean of the Division of Veterinary Medicine, Iowa State College, under date of June 29, makes an interesting report from which I extract the following information:

"As compared with an entrance class of 43 for 1906-1907, the class of the past year numbered 61. The class of 1907 at the beginning had a membership of 30, eight of whom were graduated. The class of 1908 started with a membership of 35, 14 of whom were graduated.

"For the past several years the entering class has outnumbered the freshman class of the year previous by a steadily increasing number, notwithstanding the fact that the entrance requirements have been considerably raised.

"Our entrance requirements now demand a diploma from an accredited school for matriculation, or its equivalent, or the successful passing of a matriculation examination of a recognized college; and this has been adhered to except in a few instances, and the results of these exceptions have proven very satisfactory, the men in each case having proved capable and successful in the work. By maintaining this high standard of entrance requirements we are enabled to confine much of the general and preparatory work, usually included in a veterinary course, to the secondary schools. Consequently our students receive four years' technical training bearing directly upon veterinary medicine and including many subjects which tend to give him a broader grasp of his chosen profession, and more thoroughly equip him for his place in the professional world when he leaves this institution.

"Of the class of 1907 one member is now a professor of pathology, histology and therapeutics in a veterinary college."

Dr. A. H. Baker, of the Chicago Veterinary College, reports under date of June 30, 1908, from which I take the following:

"In reply I will say that in accordance with the report of the committee appointed by the Department of Agriculture to investigate the veterinary schools last winter, the Chicago Veterinary College will comply with the requirements embodied in

that report. The matriculation examination required is the second grade Civil Service of the United States Commission, with geography and United States history added.

"More laboratory space is arranged for the coming session. The various subjects will be graded to avoid repetitions.

"We had 148 freshmen last year as compared with 118 the year before. There were 113 in the senior class during the last session, 106 of whom graduated. The faculty consists of fifteen professors and three assistants. This is no addition to our previous faculty, but a change is made in the chair of histology. Dr. T. O. Edgar, M.S., M.D., takes the place of G. E. Amadon, B.A."

An interesting letter from Dr. Frazier, dean of the McKillip Veterinary College, brings us some suggestions and information and states that McKillip is meeting all the requirements of the Department of Agriculture.

"This institution has, during the present vacation, completely reorganized the faculty and rearranged its courses of study. The present organization is in accordance with the recommendations of the Department of Agriculture, recently issued. The college has added to its teaching staff two professors, Dr. F. P. St. Clair and Dr. B. E. Sherman, and a number of instructors.

"Improvement in the equipment of the college has been made at an expense of $10,000. This includes a complete laboratory equipment in bacteriology accommodating 160 men; a complete laboratory equipment in pathology accommodating 140; a complete laboratory equipment in materia medica accommodating 140 men; additions to the laboratory equipments of the departments of chemistry, histology and physiology; and the addition of a dissecting room. This institution is meeting all the requirements of the Department of Agriculture and our aim is to give a thoroughly scientific and practical course so far as present conditions will allow."

Dr. Mueller reported for the Indiana Veterinary College:

"The applicants for graduation in the Indiana Veterinary College, session 1907-1908, were 35; of this number 4 failed, leaving 31 graduates. Our freshman classes have been gradually increasing in the past five years, each succeeding class containing an increased number of better educated men. Our institution has added four additional well-known veterinarians to our teaching staff—Dr. A. W. Bitting, Dr. R. A. Craig, Dr. O. L. Boor, and the fourth to be still appointed. The chair of pathology has been changed.

"Dr. O. L. Boor, for many years connected with our State Examining Board, takes the chair of clinical medicine. Contagious disease will be taken by Dr. R. A. Craig. Dairy inspection by Dr. A. W. Bitting. Stock judging teacher is still to be appointed."

Under date of June 30, 1908, Dr. Stewart, of the Kansas City Veterinary College, makes a most encouraging report, to the effect that the freshman class of last year, 215, was much larger than that of previous years, and that a large percentage of these students have had high school training, 109 were graduated with the class of 1908. Three seniors failed to graduate. He goes on to state that:

"The course for the coming session has been materially enlarged, especially along laboratory and clinical lines, in this particular meeting the recommendations made by the special committee of the Board of Animal Industry, and made official through the approval of the Secretary of Agriculture. In fact any difference or shortcomings in the course will be rectified and every condition of the secretary's recommendations fully met. See the new announcement, where you will note, on page 16, a statement of the new curriculum.

"There have been only a few changes in the faculty. Dr. H. Jensen, of Nebraska, has been added and it is probable that others will be engaged before the opening of the next session, as the college is anticipating a still larger attendance for the coming term.

"The secretary's recommendation relative to matriculation examination will be promptly put in force notwithstanding the colleges have another year to meet the requirements, in fact the examination in this college has been nearly identical with the requirements for the past two years, with the exception of two subjects, which have been added; namely, geography of the United States and American History."

Dr. Law reports for the New York State Veterinary College:

"Our freshman class entering in 1907 was 35, as compared with 32 in 1906, and 24 in 1905. The 1905 class went down from over 50 because the entrance requirements were doubled in that year. The numbers are again rising and in a year or two the course will doubtless be extended to four years.

"The graduates of 1908 were but 18, representing the small class entering in 1905, but this will be remedied year by year.

"No immediate increase in matriculation requirements is anticipated. Every matriculant must now show four years of successful high school work. The conditions are parallel with those of other colleges in the university.

"The faculty this year loses the first director, who is retired at 70 on the Carnegie pension. Dr. V. A. Moore succeeds as director, retaining his functions as professor of pathology and bacteriology. Dr. D. Udall of the University of Ohio, succeeds to the chair of veterinary medicine."

It should be explained that the Kansas State Agricultural College, Veterinary Department; the New York-American Veterinary College, the San Francisco Veterinary College, and the State College of Washington were unintentionally omitted from the list of colleges invited to report. The chairman of your committee recently had a quite extended conversation with Dr. Schoenleber, dean of the Kansas State Institution, and was pleased to learn of the rapid and satisfactory development of the institution. Among other things, it may be remarked that they are just completing a new $75,000 building for the veterinary department. They are starting in with a four-year course. This very young institution has already won its way to recognition among the veterinary colleges listed under class "A" by the committee, which will be reported later.

Members of this association are doubtless all aware that a committee of prominent veterinarians was selected some time ago for the purpose of investigating American Veterinary Colleges, with a special view, I presume, of classifying and listing those whose graduates should be accepted for civil service examinations in the Bureau of Animal Industry. This committee has reported. Its report appeared as Circular No. 133, Bureau of Animal Industry, United States Department of Agriculture, issued July 6, 1908. [Report was published in full in the August REVIEW.]

I think that most of the older members of this association will realize by reading the report that in order to be a good student at a modern, well equipped veterinary college, the young man will have to "go some," and there will be very little time for sitting around the stove and visiting in the dean's office. The total number of hours to be covered in three years of six months each is 3,200, or an average of something over 42 hours per week for the entire period. Note that the report recommends and all of the reputable colleges will unquestionably accept, three years

of six months each exclusive of final examinations and holidays, and that there must be 150 days of each year of actual teaching and 3,200 actual teaching hours, 42 hours per week for the entire period.

I remember visiting one veterinary college not so very long ago where, during the ordinary class room hours there were actually no classes in the entire institution in progress, a considerable number of students were sitting around the stove telling stories and a study of their courses outlined only claimed four hours a day of class room work. There was not a microscope in the institution. I understood from good authority that very many of their periods were on paper only and that even lecturers who actually gave work were frequently irregular or missed their periods altogether.

This institution, however, is not listed among those mentioned under class "A."

We have had a number of good veterinary colleges in the country, colleges that have been for years actually living up practically to the recommendations of this committee. These institutions will need to make but slight changes in their work in order to comply fully with these regulations and such are the colleges which we ought to recommend for the young men who are planning to take veterinary training.

Papers were read and discussed as follows: "The Need of a Better Meat and Milk Inspection," Dr. G. E. Leech; "Glanders," E. L. Tuohy, B.A., M.D.; "Something New," Dr. C. C. Lyford; "The Relation of Eczema to Tissue Reaction and Constitutional Derangements," Dr. Edmund Mackey.

Committee on Resolutions.

The committee on resolutions, Dr. G. E. Leech, chairman, reported as follows:

Resolved, That we hereby express our appreciation of the untiring efforts of the local committee, in furnishing to this society the commodious quarters and the elaborate entertainment which we have received in the city of Duluth, and extend to them a vote of thanks, and express our appreciation of the welcome extended to us by the mayor and citizens; and be it further

Resolved, That we extend a vote of thanks to those who have contributed to the interesting program, thereby making this one of the best meetings of this society.

Whereas, Death has taken from the ranks of the profession Dr. A. Youngberg, a member of this society, be it hereby,

Resolved, That we express our deep sense of feeling at the loss of one that has contributed so freely his time and labor to the interest of the profession, and be it further,

Resolved, That a copy of these resolutions be spread upon the minutes of our society.

Whereas, Dr. R. R. Bell, one of the active members of the veterinary profession of America, and one of the foremost workers in the profession, has been taken from our midst by death, be it hereby

Resolved, That the Minnesota State Veterinary Medical Association expresses its deep sympathy and that it regrets his loss to the veterinary profession.

The report was adopted by vote of the association.

The second day was devoted to recreation including a tally-ho ride on the boulevard in the afternoon, a steamboat excursion down the St. Louis River in the afternoon, terminating with a banquet in the evening.

C. A. Mack, Secretary.

GEORGIA STATE VETERINARY ASSOCIATION.

The semi-annual meeting was held at the Kimball House, Atlanta, September 3, 1908, being called to order at 11 a. m. by the president, Dr. P. F. Bahnsen. Others present were as follows—the largest attendance of any previous meeting: Dr. J. R. Anderson, Macon; Drs. W. E. Carnes and H. G. Carnes, of Atlanta; Drs. J. N. Cook and C. D. Coker, of Atlanta; Dr. E. L. Fryer, Blakley; Dr. T. E. Jago, Athens; Dr. A. Jasme, Savannah; Dr. T. E. Lindsey, Rome; Dr. J. E. Miller, Gainesville; Dr. M. A. Morris, Savannah; Dr. J. H. Oliphant, Augusta; Dr. H. J. Schwartz, Atlanta; Dr. W. A. Scott, Columbus. Honorable members present, Dr. C. A. Cary, of Auburn, Ala., and Prof. C. L. Willoughby, of Experiment, Ga.

After approval of minutes of the December meeting held at Auburn, Ala., the president announced a committee to complete the Constitution and By-laws of the association, with advice of Dr. Cary. A recess was taken to permit the committee to prepare its report. Upon assembling after lunch, at 2 p. m., the committee submitted draft of final Constitution and By-laws, which was accepted unanimously, and put into effect at once, and ordered that copies be printed for distribution.

The literary program was taken up, as follows:

Paper on Epizootic Lymphangitis, by Dr. C. A. Cary, of Alabama. It was stated this disease had not yet appeared in the southeast, but the author desired to have practitioners on the lookout, and the paper was given close attention.

Dr. John E. Miller, of Gainesville, gave description of a case of a cow, diagnosed by Dr. Nighbert, of the Bureau of Animal Industry, as parturient meningitis, occurring about three weeks after calving, which had many symptoms different from parturient apoplexy.

Dr. Scott, of Columbus, detailed some methods used in the treatment of cases of open joints. Other successful treatments were mentioned by Drs. Anderson and Oliphant.

Dr. Jasme, of Savannah, read a short paper on "The Bots," mentioning some life history of the bot-fly, and describing an infection upon his own hand.

Dr. P. F. Bahnsen, of Americus, gave an interesting paper on "Fistulous Withers," and modern methods of treatment.

At the close of the program, a business session was held, to take the proper steps on the part of the association in complying with the law recently passed by the Georgia Legislature on the creation of a Board of Veterinary Examiners, and regulation of practice in the state. The requirement being that the members of the Examining Board be endorsed by the association, nominations were called for, Vice-President Carnes being in the chair. Dr. Bahnsen presented a list of candidates for membership upon the Examining Board, regard being had for proper distribution from the various sections of the state, and also among the different colleges represented, as follows:

Dr. Thos. E. Jago, of Athens (Ont. Vety. Col.); Dr. Chas. R. Jolly, of Atlanta (Univ. of Pa.); Dr. John R. Anderson, of Macon (Chicago Vety. Col.); Dr. M. A. Morris, of Savannah (Am. Vety. Col.); and Dr. J. C. Schwencke, of Thomasville (Copenhagen).

After some discussion, these candidates were unanimously endorsed by the association, and the secretary instructed to send the list to the Governor for appointment, which was done the following day.

The time and place of the winter meeting was left to the executive committee, with preference to Atlanta, during holiday week.

Adjourned.

C. L. Willoughby, Secretary.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular meetings of the Veterinary Association of the District of Columbia were resumed on the evening of October 21, 1908, at 514 Ninth street, N. W., Washington, D. C. The president, Dr. John Lockwood, occupied the chair, and there was the usual large attendance.

Dr. J. F. Morris was elected to membership.

It was decided to hold the meetings of the association hereafter on the third Wednesday of each month, instead of the fourth Wednesday, as heretofore.

Dr. M. Page Smith, of the Committee on Contagious Diseases, reported that since the adoption of the muzzling ordinance in the district the number of cases of rabies in dogs had decreased greatly; he reported a noticeable increase in cases of tetanus of horses, and several cases of spinal meningitis. He reported favorable results from the antitoxin treatment in tetanus. Dr. E. S. Walmer reported a number of cases of tetanus in horses in his practice, the antitoxin treatment being used, and recoveries resulting. Dr. John Lockwood spoke at length on the prevalence of tetanus.

There was an interesting discussion with reference to the proper designation of members of the veterinary profession—veterinarian, veterinary surgeon or veterinary—the consensus of opinion being that the term *veterinarian* was the correct and proper one.

The question of the operation of the veterinary law of the District of Columbia having been brought up, Dr. Lockwood stated that during the short time it had been in operation it had proven a success in every respect.

Drs. E. S. Walmer, J. F. Morris, C. E. Dornheim, J. P. Turner, and John Lockwood were appointed as the Committee on Contagious Diseases to report at the next meeting.

F. M. Ashbaugh, Secretary.

On Saturday evening, October 10th, a few of the prominent veterinarians of Detroit surprised Dr. S. Brenton, by calling at his residence, and after partaking of supper, presented him with a fine gold watch fob, in commemoration of his fiftieth birthday.

NEWS AND ITEMS.

Dr. H. J. Thole, formerly of Brookville, Ind., is now practicing at Deer Lodge, Montana.

Dr. A. J. Savage, of Colorado Springs, is taking a post-graduate course at the Kansas City Veterinary College.

Veterinarian B. E. Barham, of Louisiana, is enrolled as a student at Toulane Medical College, New Orleans, La.

Dr. Edward Pugh, for several years located at Lawton, Oklahoma, has recently established a practice and has a hospital at New Carlisle, Ohio.

The family of Dr. R. P. Lyman accompanied him to Kansas City. The Doctor has engaged apartments in the Albemarle, 2900 Troost avenue, for the winter.

Dr. W. A. Davidson, of Kansas City, Kansas, was recently appointed Veterinary Inspector of the Bureau of Animal Industry and reported to Chicago for duty the last of October.

Dr. Logan Bruce Huff, Spokane, Washington, was married, October 3, to Miss Lulu Eva Bumgarner, daughter of Mr. and Mrs. James J. Bumgarner of Moscow, Idaho. Dr. and Mrs. Huff will be "at home," Spokane, Washington, after November 1.

Dr. D. M. Campbell, of Hiawatha, Kansas, has been appointed Milk and Dairy Inspector by the city of Topeka, Kansas. That thriving capital city has become very interested in the pure milk problem and have made a wise selection in procuring the services of Dr. Campbell.

Dr. Logan B. Huff, an inspector, Bureau of Animal Industry, Spokane, Washington, has been introducing his newly acquired bride to his many friends and relatives in St. Joseph and Kansas City. The Doctor says it is not well for man to live alone, even if engaged in the Government service.

Mr. Scott Wisner reports 108 cases have been presented at the clinic of the Veterinary Department of the Colorado Agricultural College from September 8 to October 10, 1908. These represent 50 different diseases. Ten autopsies were also held, representing nine different diseases, and included horses, cattle, hogs and dogs.

Journal

AMERICAN VETERINARY REVIEW.

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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, October 15, 1908.

CHLORAL HYDRATE IN GENERAL ANÆSTHESIA.—I have lately made several allusions to the recent boom that the use of chloral hydrate has received in the treatment of some diseases and I have related the results that have been obtained and recorded in the societies.

In fact, it seems as if there was a tendency for scientists to take hold of the subject again and show the benefit that surgery in both medicines could derive from its use if it were more generally resorted to.

In Italy, D. Bernardini, adjunct and libero docent at the Royal Veterinary School of Milan, has published lately in the *Clinica Veterinaria,* a series of articles, a reprint of which, in a neat and complete pamphlet, he has presented me with.

"Il Cloralio Idrato Nell Anestesia Generale" (Chlorate Hydrate in General Anæsthesia) is a most valuable plea in favor of its use in veterinary practice.

After a brief statement considering the local and general effects of chloral, its action on the heart and on the blood, the posology is considered. The dose of chloral introduced in a vein, as an anæsthetic is 30 to 35 grammes, according to Lanzillotti, Wolff and Poitevin. It is of 30 to 50, according to Arloing, Humbert and Burgraeve, while Cagny raises it to 60 and

80. Cadeac and Mallet gave by rectum 120 grammes to horses with 1 gramme of Chlor. of Morphia * * * and 2 grammes to dogs with 0.10 of Morphia. * * *

Toxic effects, although they have not been very well studied and are not very common, are detected by the dilation of the pupil. *It is the first indication of the intolerance of the organism.* The means to overcome an intoxication are numerous and have given rise to much discussion. For some strychnia is the antidote, for others the cold douche on the head; or again, for many, the electric current. Pilocarpine has also its advocates and is well recommended.

The clinical indications for the use of chloral can be gathered into two great categories, those where hypnotic and anæsthetic effects are desired, and those including the advantages that can be obtained by its application upon tissues. The first are the most interesting as they relate to the use of chloral as a general anæsthetic. It is there that it deserves a greater diffusion in clinics and private practices.

The mode of administration varies. That per the stomach has not yet been regulated. That per rectum, although more precise, must be made with mucilaginous solution. That by tracheal injections is too unstable and dangerous. The endovenous injection is the best; or again, the intraperitoneal. The author's method is here illustrated. It is similar to the steps taken for the injections of sera in the veins. Prof. Bassy uses a solution which is kept already prepared in vials of various doses hermetically sealed.

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The article of Dr. Bernardini would probably have only a scientific interest if it was not completed by a long list of the clinical applications where he has had the opportunity to use chloral as a general anæsthetic. They form for the generalization of this method a most powerful argument and cannot but induce veterinarians to resort to it.

Between the years 1906 and 1908 chloral has been used in forty-seven cases. Twenty-seven in horses and twenty in dogs. Among the horses five received peritoneal injections; for the other twenty-two, the endovenous injections were resorted to. With the dogs, only three received chloral by the veins; the

How an Intravenous Injection of Ixotonic Solution of Chloral Hydrate is made for General Anæsthesia.

others had it by the intraperitoneal method. The difficulties accompanying the venous injections by reason of the small size of the blood vessels accounts for this. The operations that were performed were: In horses, Plantar neurotomy, scirrhous cords,

castration, fistulous withers, removal of the sole of the foot, excision of the plantar aponeurosis, laryngo-tracheotomy, removal of the arythenoid cartilage, parotid abscess, cold abscess, collection in the guttural pouches, umbilical hernia, removal of cartilaginous quittor, tumors, median neurotomy, and amputation of the penis. For dogs, it was resorted to for entropion, fistulas of the paws, cyst of the shoulder, lupus, amputation of the vagina, removal of mammæ, ovariotomy, laparotomy and cataract. In none had there been any accident. The results thus obtained in so many clinical applications speak for themselves. With few exceptions, due to errors in the dosing, and the technique of the operation, in the great majority of the cases, the effects of anæsthesia were complete and perfect, and to such an extent that in the presence of the indifference of the patient and of the great sufferings that might have ben exhibited, the surgeon had the impression that he was operating on a cadaver.

Among the conclusions of his investigations, Dr. Bernardini says: "The effects of chloral introduced in the veins or in the peritoneal cavity are constant and complete. The results obtained in clinical and experimental applications show the great usefulness and services that it may render in general practice." It is now to general practitioners to speak!

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Tallianine as an Antidote for Acute Phosphorus Poisoning.—It is true that intoxication with phosphorus is not as frequently met nor observed in our practice as it is in human. Yet, I believe that some cases have been recorded where fatal results have followed. The observations that were made at the Societe de Pathologie Comparee are then interesting, as they refer to the use of Tallianine as a counter-poison in cases of acute intoxication with phosphorus. The communication was made by Dr. Gautier, who has made of this drug a most careful study, as our readers may know from our chronicle of last July. From the *Revue de Pathologie Comparee* I extract the following facts:

Among the various therapeutic agents recommended in the treatment of this intoxication, spirits of turpentine stands as one of the best. But it is necessary that it should be old and strongly charged with ozone, so as to form when in presence of phosphorus an harmless terebenthino-phosphorous acid. From the study that the author has made of the principal therapeutic properties of Tallianine, it has seemed to him that the qualities necessary to act as an antidote, energetic and always active, existed in it; as it contains always a sufficient quantity of ozone to oxydize a fatal dose of phosphorus in the digestive canal. He carried out three series of experiments, giving to several dogs phosphorated oil to 1/100, injecting it directly in the stomach. After a varying time, these dogs were treated with Tallianine administered in the same manner. In one series, two dogs rceived 1 cc. of phosphorated oil. Fifteen minutes after, one received 5 cc. of Tallianine. He survived, and the other died.

In another series three dogs received a dose, twice as big, of phosphorated oil. The next day only 5 cc. of Tallianine were given to one. He and another died two days and a half after. The third dog, three hours after taking the phosphorus, received 10 cc. of Tallianine. This dog died only fifteen days later, although he had had the same dose of Tallianine given to him every day. From all this, the author concludes: That Tallianine may, to some extent, be considered as an antidote of phosphorus; a fact which has an important practical value. Every practitioner who has Tallianine must give, *per mouth,* a large dose of it as soon as he is in the presence of a case of such poisoning. However, it must be remembered that it will probably be useless in a case where the dose of toxic has been very large. At any rate it is worth trying.

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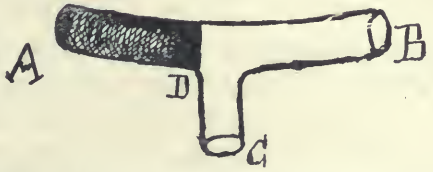
PERMANENT FIXATION OF A METALIC TUBE IN THE URETHRA OF A DOG, TO PREVENT URETHRAL STRICTURE AFTER

URETHROTOMY.—Prof. R. Bassi, the director of the Royal Veterinary School of Turino, has recently published in the *Revue of Leclainche* the history of a case from which much is to be learned. The article is headed, "Permanent fixation of a metallic tube in the urethra of a dog, to prevent urethral stricture after urethrotomy."

It seems that a hunting dog had two fistulous tracts on each side of the urethra, a little below the ischiatic fossa. The dog had difficulty in micturating and only urinated by the escape of a few drops through the urethra or one of the fistulas. In the history of the case it was said that a veterinarian had already treated the dog and opened with the actual cautery a tumor, which had existed where the fistulas then were. Catheterism made with very fine and elastic instruments revealed that the urethra was obliterated by a hard substance, probably a calculus, it was supposed. The fistula of the right side communicated with the urethra. Urethrotomy was performed on a level with the posterior extremity of the penian bone, but instead of a calculus it was found that the obstacle was due to a deformation of the canal of the bone of the penis, which had been fractured and the fragments displaced. An ordinary traumatism was then supposed to have been the cause of the whole trouble. ERROR! Under the skin of the internal face of the left thigh several shots were found and two dropped from one of the fistulas. The fracture then was due to the dog having received a gunshot wound on a previous occasion.

These points established, the prognosis remained nevertheless serious, and it seemed only possible to overcome the difficulty and save the dog by making another fistula back of the obstacle; and, as said the Professor, "he performed a second urethrotomy a little below the ischial fossa, between the orifices of the fistulous tracts, so as to allow a free micturation and obtain the cicatrization of the two fistulas now existing." But yet the possibility of the urethral stricture remained the same. Only a mechanical means to prevent it was necessary.

A German veterinarian, Raber, had already kept the urethra dilated with a tube in T-shape, made of lead. Prof. Vachetta had also attempted with a tube made of tin. Prof. Bassi says: "I decided to attempt the same operation by the introduction of "a metallic tube and had one made in silver, which I applied.



Length of the whole tube A B.—4 centim ½.
Length of the branch for exit of urine C D.—12 millim.
Solid part of the tube, A D.
Internal diameter of the tube.—5 millim.

"The introduction of the tube required a larger incision of "the wound towards the ischiatic fossa, after which, the intro- "duction of the tube was easy. It was introduced in such a way "that the solid part, A D, was turned towards the os penis and "the hollow portion, B, towards the ischial curvature. A "stitch of suture is sufficient to hold the tube in place."

The dog urinated freely immediately; and with some attention to the fistulous tracts and to the wound of urethrotomy, recovery was such, that the dog was soon cured of his fistulas, and was able to do his shooting season that year, and was in excellent condition for the next.

As Prof. Bassi remarks, although this is a simple observation, yet the success he has obtained will justify similar interference in favorable conditions in dogs and also in cattle and in horses, so as to avoid the urethral stricture which so commonly occurs after urethrotomy.

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The Treatment of Tetanus by Intra-Rachidian Injection of Sulphate of Magnesia.—The treatment of teta-

nus in the human patient by intra-rachidian injections of sulphate of magnesia is not altogether new. It has already been tried in America and also on the continent, with a sufficient number of recoveries to justify the conclusion of an article on the subject published lately in the *Revue Scientifique,* from the pen of a Dr. Griffon, who has had recently a recovery by this mode of treatment.

This therapeutic method is the result of the experimental researches of Meltzer and Aner, who have demonstrated the specific action that magnesia salts have upon nervous conductors. After puncture at the lumbar region and removal of a certain quantity of cephalo-rachidian fluid, a solution of sulphate of magnesia at 25 per cent., in the dose of 1 cc. for every twenty-five pounds of the weight of the body, is injected. After an hour all the muscles are relaxed, the patient has no more pains, can drink and turn in his bed. The pains and the contractions generally return the next day, but with less severity. A second injection is made. Five have been necessary in the case of Dr. Griffon.

The method of intra-rachidian injections already used for surgical anæsthesia and again in the treatment of some nervous diseases, has sometimes given rise to accidents which, however, have not been very frequent, and above all are only temporary and readily subside by the subcutaneous injections of 1 millig. of atropine.

Dr. Griffon's conclusions are: Rare accidents, temporary and relatively mild when they occur, and good results in six recoveries out of nine cases treated, are sufficient evidence that this method deserves to be applied in the treatment of this disease. In our days when the preventive treatment of lockjaw is so extensively resorted to in veterinary surgery, cases of this disease are not as frequent as they used to be, but yet in the presence of a case when anti-tetanic serum and other means of relief could not be at hand, the question may be put, Why not try the sulphate of magnesia in intra-rachidian injections? Of course, there is a great difference in making the lumbar puncture

in a large animal and in man; but yet * *. Time may tell more of the value of this new treatment!

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Extirpation of the External Genital Organs for Primary Carcinoma of the Prepuce.—In one of best journals published in Italy, *Il Nuovo Ercolani,* I have found the record of a case which has proved most interesting by the nature of the disease from which the animal suffered, by the daring treatment which was applied and resulted as it was anticipated, namely, recovery followed by relapse and death some short time afterwards and also by the rarity of the case. The record is made by Dr. Felice Cinotti, of the Veterinary Surgical Institute of the University of Pisa, who operated on the patient. The title of the article is, "Extirpation of the external genital organs for primary carcinoma of the prepuce" in a dog.

The history is quite simple. Arno is a valuable dog of fifteen years, which for some time has had at the preputial orifice a little tumor. This has recently grown very rapidly and is now as big as a hen's egg. There are some cutaneous ulcerations more or less wide, and in the inguinal region two tumors are detected. The growth of the prepuce has a certain amount of mobility, without fluctuation, and is uniformily hard. The prepuce is infiltrated. There is no pain nor heat. The clinical characters are sufficient to indicate the nature of the trouble. It is a malignant tumor, probably carcinoma with advanced infiltration of the inguinal lymphatics. The prognosis is serious. Suspicion of other growths existing in the splanchnic cavities, justified by the detection, with careful palpation of the abdomen, of an enlargement of the sublumbar lymphatic glands, possibility of a return of the trouble and a fatal generalization, all these points were carefully taken into consideration and the final conclusion is that the only possible relief, the only chance, was the extirpation of all the external genital organs.

Under all necessary precautions the operation was performed, with the animal anæsthetized with morphia, scapolamine

and ether. Starting four fingers from the anus, two incisions were made running from near the ischiatic arch on each side of the scrotal root of the penis, round it, forward on each side of the scrotum, to the prepuce and then to the umbilical cicatrix where they met on the median line at acute angles; thus leaving between them a surface in which were enclosed the tumor, the prepuce, penis, testicles and the scrotum with some infiltrated tracts of skin. The second step of the operation consisted in the dissection of all by transverse section of the preputial muscle, rapid dissection of the surrounding connective tissue, exposition and amputation of the testicular cords, drawing back of the mass of the penis backwards and amputation of the organ back of the os penis. The entire mass was then loose, the stump of the urethra was secured to the skin, and the blood vessels ligated. The two swollen lymphatics of the inguinal region were removed, and the animal left to himself. He woke up having been four hours under the narcotic effects. The recovery presented nothing particular, cicatrization by first intention took place almost in the whole extent of the wound and sixteen days after the operation, the dog was returned to his owner. But forty-one days from the day he was operated, the dog was brought back to the doctor. He had a bad relapse and was in a condition which left no possible doubt for the result. He was then killed. At the post-mortem the lungs, heart, spleen, kidneys, intestines, mesenteric and sublumbar lymphatics were the seat of an extensive carcinomatous degeneration most marked!

Successful operation, but the patient died!

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Some New Compounds Indicated in Veterinary Practice.—The *Berliner Tierarztliche Wochenschrift* has recently called the attention of veterinarians to new compounds which can render good services in some indications in veterinary surgery.

One is the *Phenyform,* a compound of phenol and formol, which is recommended as a substitute for iodoform. Already

used for some time on the continent, it has been experimented with by some veterinarians with satisfactory results. It is a bactericid, desiccative, cicatrizing, hemostatic and deodorizing agent. Very fine powder, it is odorless, has a gray-yellowish color, is not altered by contact with the air or by light, is not hydroscopic, insoluble in water, ether, chloroform or benzine, but soluble in alkalines and alcohol. Veterinarians have already used it in inflammation of the keratogenous apparatus, also of tenddons, in suppurating wounds and in cutaneous ulcers. From the tests which have been made it has proved that it is not irritating to wounds, and can be used on them in the shape of powder, forming a well-protecting cover superior to that obtained with iodoform. By its stimulating action upon the granulations and its odorless qualities it makes an agent far superior to iodoform. However, its effects are more manifest if used in powder than in the shape of ointment.

Lenicet is a new acetate of aluminum that Dr. W. Stietenroth recommends. It is a white powder, very fine and light, which is not altered by contact with air, light or humidity and which is possessed of powerful antiseptic qualities. Not irritating nor toxic, it has a stimulating, astringent, deodorizing and desiccative action. Little soluble in pure water, it is, on the contrary, very soluble in weak acid or slightly alkaline soutions and can be mixed with other pharmaceutic ingredients. It can be used in veterinary practice under five forms: as pure powder, mixed with talc. (20 to 50 per cent. for wounds), as paste, being mixed with little water or glycerine, as pencils and as ointments. Pencils are principally useful in fistulas.

Cloncin, which is also spoken of in the same journal, is a solution of the albumen of milk. It is prepared by a firm of Hanover, Bengen & Co., which delivers it free of charge under further orders. This preparation has been used lately in subcutaneous injections in the treatment of colics in horses, cattle and pigs. Its effects, which are quite rapid, are to excite the intestinal contractions. Clonein is said to be excellent in all cases of colics of horses except in enteritis. It helps to make a diag-

nosis of gastro-enteritis. It stimulates the peristaltic actions and reduces the frequency of the pulse. The doses are six to eight cubic centimetres in horses, three to eight in cattle, one to two in pigs.

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Bibliography.—Just about six months ago, I gave notice here of the latest edition of the Veterinary Materia Medica and Therapeutics of Kenelm Winslow, M.D., M.D.V. It was the fifth edition, and as I had had the opportunity to notice the works of the Doctor before, and pointed out its qualities, I had little to add to my previous appreciations, merely calling the attention to what modifications and changes were in the new work. To-day it is the sixth edition that is before me, coming out just about one year after the fifth.

For this last edition I must satisfy myself in merely quoting from the preface of the author, who says: "The chief change consists in the entire revision and almost complete rewriting of that part of the text treating of the Physiological Action of Drugs."

I will, however, add that there are interesting revisions of the action of alcohol, ether, and chloroform and besides that, the additions that are made relating to iron, iodine, opium, caffeine, strychnine, pilocarpine and others, are certainly worth much consideration.

The part of General Therapeutic Measures, which in previous editions ended by Serum Therapy, Toxines and Vaccines, has also been revised and to them is added a short chapter on General Vaccine Therapy. The book is published by the house of William R. Jenkins Co., of New York.

It is useless to promise the sixth edition a good success as it is bound to have it as well as its predecessors.

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Prof. W. L. Williams, of the New York State Veterinary College, has been for some time engaged in writing a book on "Obstetrics," which is one of the branches which he has been

teaching for years. Besides this, the Professor has had a very extensive practice in this special branch of our art; and, taking all this in view, it is evident that the new work, "VETERINARY OBSTETRICS," will be the standard book in English literature. The book is in the hands of the printers. I have been favored with some of the advance sheets and from perusal I am sure that I can claim for it a grand professional success. In the advance sheets the author notices the manner in which he has arranged the work which will cover: Obstetric Anatomy, Obstetric Physiology, Pathology of Breeding, Teratology, Pathology of Pregnancy, Dystokia, Pathology of the Puerperal State, and Diseases and Accidents of the New-Born, etc., etc.

But more of it when the entire book is out.

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NECROLOGY.—I will close to-day with the sad notices of the deaths that have occurred of late in the ranks of our professsion.

In England, the Royal College of Veterinary Surgeons has to regret the death of one of its past presidents, MR. FRANCIS WHITFIELD WRAGG, F.R.C.V.S. For twenty-five years he has occupied the position of treasurer to the college.

In Italy, Dr. EZIO MARCHI, late president of the National Veterinary Association of Italy, Director of the Journal *Il Moderno Zooiatro*, died lately from meningitis, sequela of an attack of median otitis.

DR. LEOPOLDO BARUCHELLO, Army Veterinarian, Professor of Zootechny at the University of Rome, Director of the Laboratory of Bacteriology attached to the Bureau of Health, and well known by his scientific writings, has died from an infection contracted by inoculation received in his laboratory. His death comes to increase the already too long list of veterinarians who have died victims of their professional duties, victims of science.

And then come others!

At the Laboratory of Czernowitz, Dr. Luksch was studying on the bacteriology of glanders. While making centrifugation of some virus, a glass tube broke and spread the bacilli all over. He became infected, and those who were present picking up the pieces of glass, in a careless manner, infected themselves also. Dr. Luksch, one assistant, a bookkeeper and another man died.

A. L.

FOOT-AND-MOUTH DISEASE.

Early in November the attention of the profession was suddenly diverted from the tuberculosis problem, with which it was deeply engrossed, by an alarming report to the effect that the dreaded foot-and-mouth disease, after an absence of nearly six years, had again made an unwelcome appearance on American soil. Investigation demonstrated it to be contagious foot-and-mouth disease, and that the situation was one that required prompt and vigorous action.

How it could reach our shores is a mystery unless it was introduced in imported merchandise such as hides, skins, or hay, straw or similar fodder, or through the personal effects of immigrants; for it is quite certain that it could not come through the quarantine stations maintained by the federal government for imported animals.

The possibility that the disease might spread to the great cattle raising states of the west and southwest was a matter of vital concern to the animal industry of the country, to transportation and to commerce. Should such an untoward event happen it would amount to a public calamity. It would, undoubtedly, produce a famine in meat and other animal food products and send prices skyward.

It is highly reassuring, however, to know that the federal forces, as well as the authorities of the several states, are fully awake to the grave situation and are fighting the extension of the plague with every weapon known to veterinary science.

There is every indication, at this writing, that their efforts will prove effectual.

Four states were promptly placed under federal quarantine, Pennsylvania, New York, Michigan and Maryland, closing the ports of New York, Philadelphia and Baltimore. Cattle, sheep, other ruminants, and swine cannot be shipped from these commonwealths either in interstate traffic or for export.

All animals that have been exposed to the infection, as well as all affected animals, are promptly appraised and slaughtered. The stables and the contents of the buildings where the animals have been sheltered, as well as pens, cars, boats, etc., are also thoroughly disinfected. The owners receive the full appraised value of the animals condemned, the federal government paying two-thirds of the loss while the state stands for one-third.

Fortunately for the live stock interests of the entire country, as well as for the welfare of the individual states concerned, the principal centers of infection occurred in two of the states best equipped to effectively deal with the situation, Pennsylvania and New York. It is indeed a fortunate circumstance that the disease did not break out in a state not prepared for such an emergency.

No better proof of the necessity for an adequate state veterinary sanitary service could be offered to a legislative body than that afforded by the present situation. Those states which have not already placed ample safeguards around their live stock interests should see to it that the requisite legislation be enacted at the coming sessions of their legislatures. Each state has its individual responsibility. The Bureau of Animal Industry deals with the problem exclusively from a national and international standpoint.

On the twelfth day of November Hon. James Wilson, Secretary of Agriculture, issued an order quarantining the counties of Columbia, Montour, Northumberland and Union in the state of Pennsylvania. This order became effective on the day following.

On the nineteenth day of November the following order, quarantining the entire states of Pennsylvania and New York, was issued:

(B. A. I. Order 156.)

UNITED STATES DEPARTMENT OF AGRICULTURE,

Bureau of Animal Industry.

Rule 6, Revision 1.—To Prevent the Spread of Foot- and-Mouth Disease in Cattle, Sheep, Other Ruminants, and Swine.

Effective on and after November 19, 1908.

U. S. DEPARTMENT OF AGRICULTURE,

OFFICE OF THE SECRETARY.

The fact has been determined by the Secretary of Agriculture, and notice is hereby given, that a contagious, communicable disease, known as foot-and-mouth disease, exists among live stock in the states of Pennsylvania and New York.

Now, therefore, I, James Wilson, Secretary of Agriculture, under authority conferred by section 1 of the act of Congress approved March 3, 1905 (33 Stat., 864), do hereby quarantine the following area, to wit:

The States of Pennsylvania and New York.

During the existence of this quarantine the interstate or foreign transportation, movement, or trailing or driving of cattle, sheep, other ruminants, and swine, from the states of Pennsylvania and New York is prohibited.

When shipments by rail of cattle, sheep, other ruminants, and swine are made from and to points not included in the territory herein quarantined for foot-and-mouth disease, the said shipments shall not be unloaded within the quarantined territory, except when the animals are unloaded en route, as hereinafter provided, for purposes of feed, rest, and water, as required by the act of Congress of June 29, 1906 (34 Stat., 607). Such

unloading shall be into pens or yards which have been specially cleaned and disinfected for the purpose, under the supervision of an employee of the Bureau of Animal Industry, and which have been specially designated and approved for that purpose by the Chief of the Bureau of Animal Industry.

When shipments by rail of cattle, sheep, other ruminants, and swine are made from and to points not included in the area herein quarantined for foot-and-mouth disease, the cars containing the live stock shall be sealed by an employee of the Bureau of Animal Industry before the cars enter the said area; and when such shipments are unloaded en route, within the said area, in cleaned and disinfected pens, for the purposes of feed, rest, and water, as hereinbefore provided, the cars shall, after reloading, be again sealed by an employee of the Bureau of Animal Industry, it being the purpose and intent of this provision that cars containing such shipments shall remain sealed during the time they are passing through the quarantined area, except when broken for the purpose of unloading for feed, rest, and water.

Under authority conferred by section 2 of the act of Congress approved February 3, 1903 (32 Stat., 791), shipments of dressed carcasses of calves, sheep, and other ruminants, interstate or to foreign countries, from a point in the territory herein quarantined are prohibited, unless the hides or skins and hoofs are removed from the carcasses; and the interstate or foreign transportation of hides, skins, and hoofs of cattle, sheep, and other ruminants, and of hay, straw, or similar fodder, from a point in the quarantined territory, is absolutely prohibited unless the said hides, skins, and hoofs of cattle, sheep, and other ruminants, and all hay, straw, or similar fodder be disinfected prior to shipment under the supervision of an inspector of the Bureau of Animal Industry.

No railroad cars or boats, within the area herein quarantined, which have carried live stock, shall be moved interstate until the said cars or boats have been cleaned and disinfected with a 5 per cent. solution of carbolic acid.

Rule 6, dated November 12, 1908, effective on and after November 13, 1908, shall cease to be effective on and after November 19, 1908, on and after which date this Rule 6, Revision 1, which for purposes of identification is designated as B. A. I. Order No. 156, and which is subject to amendment or revision on statutory notice, shall become and be effective until otherwise ordered.

Done at Washington this nineteenth day of November, 1908.

Witness my hand and the seal of the Department of Agriculture.

[SEAL.] JAMES WILSON,
Secretary of Agriculture.

On the twenty-fourth day of November amendment 1 to B. A. I. order 156 was issued by the Secretary from Detroit. This amendment quarantined the state of Michigan.

On the same date amendment 2 to B. A. I. order 156 was issued from Washington by Willis L. Moore, Acting Secretary of Agriculture, making provision for interstate and foreign transportation of hides and skins, from points in the quarantined area, which have not had an opportunity of becoming infected. Hides and skins which have been exposed to infection shall be immersed in a five per cent. solution of pure carbolic acid, or a three per cent. solution of formalin, containing a thirty-seven per cent. solution of formaldehyde, or a 1 to 1,000 solution of bichloride of mercury, before being moved in interstate or foreign commerce.

On the twenty-seventh day of November amendment 3 to B. A. I. order 156 was issued by Secretary Wilson. This amendment quarantined the state of Maryland.

The quarantine interdict prevents the exhibition at the International Live Stock Show at Chicago of any animals from infected states, a keen disappointment to many exhibitors and others, but nevertheless is absolutely necessary for the protection of our vast live stock interests.

As we go to press circular 141 of the Bureau of Animal Industry, on Foot-and-Mouth Disease, issued November 28, 1908, comes to hand. This is a reprint from the Special Report on Diseases of Cattle, 1904, with slight revision and gives the nature and losses, cause, symptoms, diagnosis, differential diagnosis, prevention and medicinal treatment of foot-and-mouth disease. The treatise was originally prepared by Drs. D. E. Salmon and Theobald Smith and has since been revised by the former gentlemen and Dr. John R. Mohler. It is a concise and comprehensive contribution to our literature and will be very acceptable at this time to all those who are in any way concerned in the extirpation of this scourge from the American continent.

Some 150 camels in Australia are reported to be affected with abscesses and a skin disease somewhat resembling mange. The majority of the animals are in a poor and wretched condition. Veterinary Surgeon Desmond is making an investigation and laboratory diagnosis.

Gotham Veterinarians to Hold a "Smoker."—The Veterinary Medical Association of New York City will hold a "smoker" at Reissenweber's, Fifty-eighth street, Columbus Circle, on the evening of December 9, 1908. The object of this affair is to encourage a social mingling of the members of the veterinary profession of New York City and the surrounding cities, and let them get better acquainted with each other. The exactions of veterinary practice are a constant strain on the nervous system and an occasional relaxation is beneficial both physically and mentally, and it is earnestly hoped that this attempt by the city association to bring the members of the profession together socially may be sufficiently encouraged to warrant others during the winter season. Tickets covering expenses will be issued at a cost of two dollars ($2.00) and may be obtained from Dr. W. Reid Blair, secretary of the city association, New York Zoological Park; from the president of the association, Dr. F. C. Grenside, Durland's Riding Academy, Sixty-sixth street and Central Park West, or from any member of the committee, Drs. Clayton, Mangan and Ellis. Any gentleman not of the profession may be an invited guest of any veterinarian who desires to bring one with him from among his circle of friends.

ORIGINAL ARTICLES.

THE CONTROL OF BOVINE TUBERCULOSIS.*

By Dr. J. G. Rutherford, Veterinary Director-General and Live-Stock Commissioner, Dominion of Canada; President American Veterinary Medical Association.

The official program has the subject assigned me of the "Control of Bovine Tuberculosis in Canada," the last two words having been added to the title originally sent in by me. I have but little to say on the control of bovine tuberculosis in Canada, inasmuch as while in some districts, under municipal and Provincial laws, efforts are being made to control the disease in dairy herds supplying various centres of population, very little is now being done by the Federal Government, through the Health of Animals Branch of the Department of Agriculture, which is in my charge.

CANADA'S POLICY CONSERVATIVE.

Although for some years, at a period prior to my assuming office, a very considerable amount of testing with tuberculin upon the application of owners was carried on, no appreciable benefit was found to result, and, as a matter of fact, we now confine ourselves to the testing of cattle imported or exported for breeding purposes, those on the Experimental Farms, and a few other herds which have been placed by their owners under the direct control of our officers. We, however, on the request of owners of cattle who desire them tested, supply tuberculin free of charge to any reputable, qualified veterinary surgeon, on condition that he will send to the Department the results of the tests made by him, on charts which we furnish for that purpose.

* Read before the International Congress on Tuberculosis, 1908, at Washington, D. C.

All cattle reacting to tuberculin in Canada, save those privately tested, are permanently earmarked, by cutting a large T out of the right ear.

I may as well frankly state that the reason for this apparent inertia is that, so far, no satisfactory intelligent method of dealing with bovine tuberculosis has been evolved, and we deem it wiser, before taking action, to await the results of the investigations now being conducted by veterinary scientists in various countries, in the hope that some better way of dealing with the problem may be discovered.

Our knowledge of tuberculosis, the tuberculin test, and of their vagaries, have all along been defective and incomplete, and undoubtedly is so to-day, and when we bear in mind the many legislative mistakes which, owing to this lack of exact knowledge, have been made in the past, it must be admitted that caution is commendable, and that, before taking any definite departmental action involving the large interests which are at stake in such a country as Canada, it is reasonable that we should "look before we leap," and guard, as far as may be, against the possibility of having to recede, more or less ignominiously, from a position once taken.

UNWISDOM OF COMPULSORY TESTING AND SLAUGHTER.

Many of our medical friends, and some veterinarians whose zeal outruns their discretion, advocate compulsory testing and the slaughter of all reacting animals. At first sight, to men lacking practical experience, and, perhaps, devoid of responsibility, this policy may appear a very simple solution of the problem. That it is very far from being so, however, needs but little demonstration to an audience of this nature. All practical veterinary sanitarians, dealing in large matters, are, even without taking into consideration the painful experience of those communities which in earlier days were rash enough to adopt it, well aware, not only of the great difficulties to be encountered in carrying out such a policy, but of the fact that under ordinary circumstances,

in spite of the great economic waste involved, its results are by no means so satisfactory as its advocates would like to have us believe. Most of us can remember the time when the majority of veterinarians, many of whom should have known better, believed that if a herd of cattle were tested, the reactors destroyed and the premises disinfected, the disease was stamped out, and the owner might thereafter be left to follow his own courses.

Intelligent men have, of course, understood from the beginning that there must be, in the very nature of things, a period of latency or incubation between the time of infection and that when an infected animal would react to tuberculin. This period was fixed in 1899 and 1900 by contemporaneous but entirely independent experiments, carried on by the Tuberculin Committee of the Royal Agricultural Society of England, and by Drs. Nocard and Rossignol, under the auspices of the Societie de Medecin Veterinaire Pratique of France. The results in both cases were practically the same, and showed the period of incubation, while depending somewhat upon the mode and degree of infection, to range from eight to fifty days. This fact, affecting vitally as it does both the original herd and any additions or replacements which may be made, is in itself a very serious obstacle to the satisfactory working out of a policy of compulsory testing and slaughter, even with liberal compensation. Taken in conjunction with the vagaries of tuberculin, especially on second, third and fourth tests in the same herds, and the numerous ingenious methods adopted by owners, especially of pure-bred cattle, in order to defeat the test, it is sufficient to exclude from the field of practical action this method of dealing with tuberculosis, except in small and circumscribed communities, in which all, or at least a majority of the owners, are alive to the necessity of stamping out tuberculosis, and are willing to co-operate heartily with the authorities in bringing about that result.

LIMITATIONS OF TUBERCULIN AS A DIAGNOSTIC AGENT.

This conclusion on my part has not been rashly arrived at. Ever since tuberculin was first used as a diagnostic agent in

bovine tuberculosis, I have been studying its action, and during the whole of that period my opportunities for such study have been considerably greater than fall to the lot of the average veterinarian.

Let us go a little more into detail. A herd of, say, one hundred cattle, kept under ordinary stable conditions, is tested, and twenty-five reactors are found. These twenty-five animals, together with any which, owing to the disease being in an advanced stage, may fail to react, but which are detected by clinical examination, are slaughtered and the premises carefully disinfected. It is not so very long, as I have already said, since many veterinarians were teaching that such a herd was safe and sound, and that provided any animals added were carefully tested before being brought into contact, no further danger need be apprehended. This is, of course, very far from being the case. In the first place, a re-test after three months will, depending to some extent on the virulence of the particular infection—a point of great importance—and the sanitary conditions, reveal, perhaps, from five to ten new re-actors. Even after these have been destroyed and the premises again disinfected the herd is by no means safe. The ten reactors, taking that as the number, have been living in close contact with the remaining sixty-five, and it is quite likely that three months later several of the latter will be found to be affected. Here also comes into play the uncertainty of tuberculin in repeated tests—a most serious consideration. In spite of Professor Valle's important and valuable discovery, which I may say does not by any means apply in all cases, it is quite within the bounds of possibility that a number of animals, affected to a greater or less degree, will fail to react when tested for the third or fourth time. This acquired tolerance to tuberculin is one of its most serious limitations, and constitutes another difficulty somewhat hard to overcome. Let us admit, however, that after the lapse of a longer or shorter period and a number of carefully conducted retests, the survivors of the originad herd are properly pronounced healthy.

We must now take into consideration the question of additions and replacements, one which, from a business standpoint, is in the majority of instances of paramount importance to the owner. It is not enough to have the new animals tested before bringing them on the premises. The same limitations, viz., that of the incubative period, applies to such tests as those with which we have been dealing. New arrivals must be isolated, not only from the original herd, but from each other, and submitted to a re-test at the expiry of at least three months before being allowed to come in contact with any other cattle.

Two further points here demand out attention. We have hitherto, presumably, been speaking of tests honestly applied to the cattle of an honest owner, and by a capable, intelligent and experienced veterinarian. We must now first consider some of the nefarious methods employed by dishonest and unprincipled owners to nullify the test and so defeat the end in view.

The old method of dosing beforehand with tuberculin, although still followed in many herds, has largely lost its value through the discovery of Professor Valle, above referred to, and is now, as a rule, only employed when the testing veterinarian is agreeably complacent, or a few years behind his age. It has, among the more astute dealers and breeders, been largely superseded by the practice of administering one or other of the modern antipyretics, combined for the sake of safety with other drugs, to such animals as are known to be tuberculous, or which show any rise of temperature when undergoing the test. This plan is beautiful in its simplicity. Temperatures are quietly taken from half an hour to an hour before the veterinarian makes his rounds, and the febrifuge, mixed with a little sugar and disguised in a handful or two of meal, is licked up by the animal without fuss or trouble. There is no drenching, no handling, no excitement; the temperature drops, and although there may be and often is thermal irregularitiy, there is no distinct rise, and, above all, no tuberculin arch.

This brings us to the second of my two further points, viz., the veterinarian making the test. While, with all its limitations,

I have great confidence in the diagnostic properties of tuberculin, I must confess to a feeling of suspicion with reference to all charts that are in any degree what I may term colorless, unless I know that the man who signs them is an honest, conscientious, wide-awake and experienced veterinarian. Too many men take it for granted that everything is fair and above board, and depending entirely on their thermometer readings, allow themselves to be hoodwinked by dishonest and unscrupulous owners. I could go into many details, and perhaps furnish some amusement by recounting a few of the artful dodges resorted to in order to keep the veterinarians away from their cattle between temperatures, so as to permit of their being safely manipulated, but time will not permit. One thing, however, should be emphasized, viz., the fact that in the overwhelming majority of cases we have, in addition to the temperature rise, a distinct clinical reaction, some of the most salient features of which may be, and often are, only temporary, while others persist until at least twenty-four hours after injection. Among the temporary signs which may be noticed, as a rule, from six to twelve hours after injection, are, in severe cases, rigors, often accompanied by staring coat, general excitation and frequently diarrhœa. In less well-marked cases we have coldness over the loins, quarters, thighs and tail, subacute excitation and general malaise. Even when these symptoms have passed off the animal maintains a standing posture, and is more or less stiffened; there is loss of appetite, rumination is suspended, and in milch cows the flow of milk is diminished.

Close attention to, and observation of, the animals undergoing the test are, in my opinion, indispensable. Even with them it is possible for mistakes to be made, without them the tuberculin test is very apt to be badly discredited. The older veterinarians here will recollect that, prior to the discovery of tuberculin, much attention was paid, both by teachers and practitioners, to the clinical diagnosis of bovine tuberculosis. Of late years this phase of practice has been almost entirely lost sight of, the younger men practically depending on tuberculin as a diagnostic.

This state of affairs is regrettable, and should be remedied by cultivating, with regard to cases of tuberculosis, that habit of painstaking observation which alone makes for success in the diagnosis of most of the other maladies to which dumb animals are subject.

ECONOMIC WASTE OF COMPULSORY SLAUGHTER.

I might, perhaps, explain that the foregoing remarks on the necessity of care and exactitude in making tests are intended to emphasize the idea that only skillful and specially trained men can with safety be employed in this work, no small difficulty in itself, when it comes to undertaking a universal and compulsory testing policy. There is still more to be said against compulsory testing and slaughter. Many reactors are but slightly affected, and while, in the case of beef cattle in good condition, the loss from their slaughter may be insignificant, it is a very different matter when valuable pure-bred herds, or even common grade stock, thin in flesh, are condemned. It is true that with the latter the question of compensation may be more easily settled than with the former, but the matter of economic waste is only one of degree, for while the pure-bred reactors might live out their natural lives and produce much valuable, and, with proper precautions, healthy stock, the thin grades might be fattened and slaughtered under careful supervision for purposes of human food. For the reasons given above I am convinced that, at least on any large scale, the policy of compulsory testing and slaughter is not a practicable one.

QUESTION OF VOLUNTARY TESTING.

Turning to the policy of voluntary testing, or testing in response to applications from owners, now followed in parts of the United States and in several of the countries of Europe I would point out that not only do most of the arguments against compulsory testing apply to it with equal force, but several other factors come up for consideration. Among these, perhaps, the

most important is the fact that in testing only those herds in a country that are voluntarily submitted to the authorities, the progress made in the direction of eradicating tuberculosis must, of necessity, be not only very slow, but very uncertain. Professor Bang admits that, under the experience of repeated and often disappointing tests, the patience and courage of our Danish friends not unfrequently fail, and they become weary of well doing and relapse into carelessness. This phase of the matter is one which must be taken into account, and when with it is considered the fact that the last to ask for the test are, as a rule, the breeders of pure-bred stock, whose herds are the principal agents in disseminating disease, the ultimate ineffectiveness of voluntary testing is pretty clearly demonstrateed. Owners must obtain fresh blood from time to time, and unless a man is heart and soul with the authorities in their efforts to clean up his herd, and takes every possible and minute precaution accordingly, it is, so long as tuberculosis exists in the country, only a matter of time until his stock relapses into a condition of disease.

In this connection, I have read with much interest the plan proposed by Dr. Nivan, Medical Health Officer of Manchester, and supported by Professor Delepine and Mr. Brittlebank, the Chief Veterinary Officer of that city, which includes the forming of disease free in lands by eradicating tuberculosis from certain farms, and gradually extending the work over small districts, to be still further enlarged as the system finds favor with stock owners. While there are some features of the scheme, such as the spending of public money in specially selected localities, to the exclusion of other taxpayers, and the supplying of sanitary buildings, through bringing pressure to bear on landlords, or otherwise, which are scarcely applicable to conditions in America it is in my opinion much more sensible and likely to be productive of ultimate benefit than the diffuse policy of promiscuously testing a herd here or there over an extensive territory, difficult, if not impossible, to keep under observation or control, without an enormous staff of well-trained, experienced, and absolutely conscien-

tious veterinary inspectors, having no interest, beyond that of duty, in the herds with which they are called upon to deal or their owners. I might here say that the policy of employing local practitioners for this work has been repeatedly tried, and, in my experience, at least, has not, in the majority of instances, proved either beneficial or successful.

THE BANG SYSTEM.

I have nothing to say against the Bang system itself, in fact, I am, and always have been, one of its most consistent advocates and admirers. I cannot, however, after thirty years' experience as a veterinarian on this continent, and with the knowledge acquired in that time of conditions on the ordinary North American farm, bring myself to believe that it is capable of successful general application on this continent.

There is no doubt that, if all our stock owners were thoroughly intelligent, well-informed, anxious to rid their herds of tuberculosis, and gifted with an infinite capacity for taking pains, either the Bank system or that of Ostertag might be adopted with every hope of a successful issue. As matters stand, we must, in order to deal with bovine tuberculosis effectively, have some definite policy of legal control, and the question, to my mind, is whether or not such control can properly be based on the tuberculin test.

COMBINATION OF SYSTEMS PROPOSED.

At present I am inclined to favor a combination of the systems of Bang and Ostertag with that of the Manchester man, accompanied by a closer supervision of infected herds than is recommended by either of the two first-named authorities, so far as I understand their methods. All clinical, or, if they can be detected, open cases of tuberculosis, should be destroyed, all the adults in herds in which such cases are found to be treated as if diseased, marked and segregated accordingly; all milk from such herds to be pasteurized, whether used for human food or for

that of animals, the progeny to be effectively separated from the adults, regularly submitted to the tuberculin test, and kept by themselves until the disease has been eliminated from the premises by the death or removal of the affected parent stock. Any animals added to the healthy herd would, of course, have to be tested on purchase, and retested after three months' careful isolation. I am free to admit that this plan is open to many of the objections which I myself have advanced against the other two already mentioned, but it appears to me to obviate the enormous economic waste and the tremendous popular opposition involved in the policy of compulsory slaughter, while it promises, if systematically applied, and patiently and carefully carried out, infinitely better results than can be hoped for from that of promiscuously testing the herds of only such owners as are willing to submit them to the action of the authorities. The presence of one or more actual clinical cases of tuberculosis in any herd would constitute a perfectly defensible and reasonable ground for official action; and by making notification by owners or veterinarians compulsory, as in other scheduled diseases, reliable information on which such action could be taken, would in most instances be forthcoming.

As has been well said by the editor of the *Lancet,* in commenting on the recent able paper of Dr. Overland, of Norway, the famous address of Dr. Koch, in 1901, has, after all, by stimulating others to investigation and research, been productive of good, perhaps to an extent sufficient to offset the hesitation and delay in actual practical effort which it undoubtedly caused.

As a result of that address, we veterinarians to-day know, or, perhaps I should say, have the proofs conclusive and satisfactory, of many things which we knew before, but were scarcely able to prove, regarding the transmissibility to man of bovine tuberculosis, and vice versa.

BOVO-VACCINE.

And this brings me to vaccination, a subject on which I have nothing to say, beyond that, up to the present, the published re-

sults of inoculation with bovo-vaccine are, from a practical viewpoint, singularly confusing, inconclusive, and discouraging. The immunity acquired under the most favorable conditions appears to be of short duration, and any advantage which may be gained is, to my thinking, more than offset by the danger of spreading the disease.

Where cultures of the human type are used, the risks appear to be, if possible, even more serious. Weber and Tirze, working under the direction of the German Imperial Health Office, report, according to Theobald Smith, that the udder of a cow vaccinated with a human culture shed human bacilli into the milk for a period of fifteen months.

Let us make haste slowly in work of this kind, and be sure of our ground before we issue any more of these definite pronouncements which make nasty swallowing later on.

I have now briefly and inadequately placed before this Congress my views regarding the various methods recommended by scientists for the control of bovine tuberculosis. While these views may to some appear pessimistic, they are at least honest, and have been carefully considered, with due regard to the responsibility which the veterinary sanitarian entrusted with large interests owes to humanity at large, as well as to those interests. Dogmatize as we may, we are still groping, and in this, as in other matters of a like nature, those who have delved the deepest are the least sure of their ground.

In the meantime, while we are waiting, as I fear we will for some time yet have to wait, the discovery of a certain and satisfactory scientific method of dealing with bovine tuberculosis, let us, as practical men, carry on an energetic campaign of education among cattle owners and the general public. Bovine tuberculosis will be stamped out when individual owners realize that it pays much better to keep sound cattle than to lose money and feed in maintaining herds tainted with disease.

IMPORTANCE OF STABLE VENTILATION.

In this campaign of education there should first be taken up a question in regard to which veterinarians have hitherto, in most

cases, been culpably negligent. If there is one matter to-day in which veterinarians are behind the age, it is that of failing to insist, at all times, in season and out of season, on the importance to live stock of thorough and effective stable ventilation. Having before us the object lesson afforded by the medical profession, and the marvellous results which its members are achieving by open-air treatment, not only helping, but actually curing, advanced cases of tuberculosis, to say nothing of checking the disease, as is now daily done in its early stages, it is nothing short of disgraceful that we are yearly permitting thousands of valuable animals to become infected, owing to the insanitary conditions under which their owners insist on keeping them. Of the truth of this contention, which is, perhaps, at first sight, rather sweeping, there is no lack of proof. In northern countries, where cattle are generally closely housed, and where a proper system of ventilation is the exception, and not the rule, we almost invariably find bovine tuberculosis rampant. In milder climates, where animals have free access to fresh air, as, for instance, among the Hereford cattle in England, it is a rare thing to find a case of that disease. On the ranges, tuberculosis is unknown, except where it has been introduced by some pampered, stable-bred individual, and even such a one is more likely to recover than to die, provided the malady is not too far advanced and the first winter can be endured. To put the case plainly, stockmen are *breeding tuberculosis* a great deal faster through neglect of this important subject of ventilation than it would ever be possible to stamp it out by the promiscuous use of tuberculin and the slaughter of diseased animals.

OPEN-AIR TREATMENT OF A TUBERCULOUS HERD.

I may be pardoned if, while on this subject, I refer briefly to an experiment which I have been carrying on for the last three years. A herd of forty-three (43) cattle, twenty-one (21) being dairy cows, twenty-eight of which had reacted to tuberculin, the remaining fifteen being apparently free from disease, has been

kept under open-air conditions since the fall of 1905. The objects of this experiment, which is of a purely practical nature, are threefold; firstly, to ascertain the effect of open-air treatment upon the diseased cattle themselves; secondly, to ascertain to what extent healthy cattle, kept in contact with diseased cattle, under open-air conditions, are subject to infection; thirdly, to ascertain what percentage of healthy calves it is possible to rear from diseased cows, kept without any precautions under open-air conditions. The experiment is not yet concluded, nor have its results been properly tabulated for publication. I may say, however, that of the 28 reactors, only one has broken down from generalized tuberculosis during the three years which have elapsed since the experiment began. One other has been killed, owing to tuberculosis of the udder. Of the healthy animals kept in contact with them, feeding from the same racks, grazing over the same ground, drinking from the same pool, not a single one has become affected, and this in spite of the fact that from time to time animals suffering from acute, generalized tuberculosis have been introduced to the herd, and allowed to mix freely with its original members.

The results in the rearing of healthy calves, however, remind one somewhat of the Irishman's pigs, which, you will recollect, when killed, did not weigh as much as he expected, and he never thought they would.

Of the calves dropped and reared by reacting cows, seventy-five per cent. have so far entirely failed to react, while twenty-five per cent. have reacted, at various ages, ranging from four months to one year. One calf died at six weeks old from generalized tuberculosis, this case being probably congenital.

The results of the various tests of the original reactors, made at intervals of about six months, and in the last case after a lapse of twelve months, are exceedingly interesting, and will, when published, together with the post-mortem notes, merit the careful perusal of those who believe in the absolute reliability of tuberculin as a diagnostic agent.

I might add that the cattle have had no shelter but open sheds, and have, with the exception of a few of the weaker individuals, been fed nothing but hay for the three winters during which they have been under observation.

It should be mentioned that, through an error in judgment on the part of an over-zealous herdsman during the first winter, our calves began to arrive in December of 1906, the first being dropped when the thermometer was 29 below zero, the others following at intervals, sometimes very short until the middle of March, 1907, and that, in spite of this, both dams and progeny throve well in the open air.

The results are very interesting, in view of the present tendency to consider the digestive tract the most frequent and certain channel of infection. While the experiment above outlined assists in proving that young animals can be and are most frequently infected through the digestive system, it also, to my mind, shows that, in the case of adults, infection through the air passages plays an important part.

I feel satisfied, and I think all practical men will agree, that had the healthy cattle in this experiment been kept under ordinary stable conditions with their diseased companions, they would not have escaped as they have done.

GET CLOSER TO NATURE.

The highest medical authorities are nowadays advising—and with the very best possible results—our modern hot-house humanity to get " closer to nature " in every possible way. The advantages of adopting a similar policy in the handling and housing of domestic animals are too apparent to admit of discussion. Nature has furnished our animal friends with every conceivable requisite for protection against ordinary climatic conditions, and most of the diseases and disabilities to which they are subject have been caused by and owe their continuance to the irrational artificial conditions imposed upon them by well-meaning but ignorant, or, rather, unthinking owners and attendants.

I am here, however, to learn, and not to teach. The problem of the control of bovine tuberculosis is undoubtedly the most serious confronting the veterinary sanitarian of to-day, and if the labors of this section of the International Congress result in its solution, I, for one, will be forever grateful.

Dogs have their friends and lovers in large numbers. The monthly sales of them in New York City amount to about $5,000.

One Better.—Englishman (in British museum)—This book, sir, was once owned by Cicero.

American Tourist—Pshaw, that's nothing. Why, in one of our American museums we have the lead pencil with which Noah used to check off the animals as they came out of the ark.

Horse Breeding to Type.—Farmers, and others, for that matter, as well, must breed to type. They must know what kind of horses they wish to produce and strive to that end. To do this, they should know what kind of material is at hand, and how it can be used. Here is something that the United States Department of Agriculture should do. And the War Department might also assist, for proper cavalry remounts are difficult to secure. In European countries, where great standing armies are maintained, there are not only governmental breeding farms, but the farmers are encouraged to breed army horses by the giving of prizes, and by permitting government-owned stallions of proper breeding to stand to approved stock at merely nominal fees. In Austria I have seen a whole regiment of cavalry mounted on horses so true to type that it would take study and acquaintance to tell one horse from another. In Germany the government has been breeding for the cavalry since the time of Frederick the Great, and with most satisfactory results. In these continental countries much enterprise is shown in securing the best blood that may be had in other countries, not omitting the Desert of Arabia, whence comes the best and purest equine blood in all the world. In this matter of horse-breeding the Italians are not the least enterprising, nor, by the way, are the Italians by any means inferior in their horsemanship.—(*John Gilmer in The Century.*)

RECENT STUDIES REGARDING THE CAUSATION AND CHARACTER OF ANIMAL TUBERCULOSIS.*

By John R. Mohler, Chief Pathological Division, Bureau of Animal Industry, U. S. Department of Agriculture.

There is probably no disease of animal or man which is at present receiving more consideration from the practitioner, sanitarian and economist than tuberculosis. Furthermore, it is one of the most prevalent diseases, and is responsible for more deaths among people, and greater financial loss to stock owners than any other affection. Because of this widespread interest attached to tuberculosis, and on account of its ravages, which extend to all the mammalia as well as birds and reptiles, the chairman of your Committee on Diseases has deemed it advisable for this portion of the report to include a brief discussion of the character, causation and prevalence of tuberculosis.

In the study of tuberculosis the names of two scientists stand out prominently. The first is Villemin, who in 1865 demonstrated by animal experiments that tuberculosis was an infectious disease; the second is Koch, who in 1882 isolated the causative factor of the disease, bacillus tuberculosis. This bacillus is the only cause of tuberculosis, and is always derived from a pre-existing case of the disease, whether in man or animal. Its presence is readily demonstrated in the lesions of the affected parts as well as in certain discharges and secretions. A peculiar ability to hold tenaciously the stain after once taking up the color, despite the action of acids, and the difficulty in obtaining a growth of the organism on culture media, are facts with which you all are familiar.

The chief method by which the tubercle bacillus enters and obtains lodgment in the animal body is not so well known, however, and to-day there are two principal ideas on this sub-

*Presented to the 45th Annual Meeting of the American Veterinary Medical Association Philadelphia, 1908, as part of the report of the Committee on Diseases.

ject, both of which have many adherents among leading scientists. One opinion which has been adhered to for years is that the principal mode of infection in tuberculosis is by the inhalation of bacilli-laden air, thus permitting the almost direct lodgment of tubercle bacilli within the lungs, with subsequent development of pulmonary lesions, which are generally the most pronounced alterations present. The opposite view, while admitting that pulmonary tuberculosis is by far the most common form of the disease, holds that the lungs become diseased indirectly as a result of the tubercle bacilli entering the system by the mouth (ingestion), after which they are swallowed, taken up by the intestinal lacteals without any injury to the intestinal mucous membrane, pass into the thoracic duct, thence into the venous circulation, and finally are filtered out of the blood by the lungs. That this latter opinion is correct in a great number of instances is supported by numerous careful experiments, and is probably the chief method of infection, especially in animal tuberculosis. That other modes of entrance for the tubercle bacilli are present in addition to their entry through the digestive and respiratory tracts is evident by a study of such localized lesions as tuberculous genitals of a bull, or a local tuberculous arthritis of the hock joint, indicating respectively infection by way of the genital tract and by direct inoculation through the skin. Hereditary transmission, or congenital tuberculosis in the offspring, is evidently more frequent in cattle than in man, but nevertheless it must be considered as a rare form of infection. In the few cases of fetal tuberculosis that have come under the writer's observation, lesions of the maternal placenta were always in evidence. However, infection could occur by means of the semen, although exceedingly rare. Hereditary transmission is, therefore, not to be regarded as an important cause of the genesis of tuberculosis, but rather the exposure to infection during post fœtal life. Predisposing causes which arise from insanitary conditions, lowered vitality, exposure and forced development, etc., are only responsible for giving the true cause (bacillus tubercu-

losis) an opportunity for lodgment and development, or better facilities for propagation in case the lesions are already present.

Character and Relationship of Tubercle Bacilli.

The greatest interest attaches to the relationship of tubercle bacilli as found in their several hosts. This relationship between the tubercle bacilli recovered from the various species of mammals, birds, fishes and reptiles is certainly very intimate. It may be that the slight differences which may now be demonstrated between the different types of tubercle bacilli have been of slow development, and due to their environment, to differences in the temperatures at which they have been forced to live, and to differences in the amount and quality of the nutrition with which they have been supplied. Whatever the variations between the types, they are not great enough to prevent the successful interchange of tubercle bacilli by means of inoculations between representative hosts of the several types.

The slow but gradual transformation of certain growths of tubercle bacilli should not be considered such an impossibility. Other forms of bacterial life yield to the peculiar influences of their environment, and why should not the tubercle bacilli be equally susceptible to change? The attenuation of the *Bacillus anthracis* by submitting it to elevated temperatures, and the prompt recovery of its primary virulence by passage through a white mouse is a notable instance of the manner in which one of the most dangerous and active pathogenic micro-organisms may be transformed. The diphtheria bacillus becomes promptly attenuated by the addition of a small amount of iodin trichlorid to the nutrient media in which it is growing. Swine erysipelas becomes much less virulent by repeated passage through rabbits. The *Streptococcus pyogenes,* and the bacillus of Asiatic cholera rapidly become affected while growing artificially, through the action of the products of their own growth, and unless removed frequently to fresh nutriment they will gradually weaken and die.

Since then it must be admitted that there are many forms of pathogenic micro-organisms that can be materially altered by increase of heat to their surroundings; by the application of the direct rays of sunlight; by increasing or decreasing the acidity or the alkalinity of their nutriment; by the influences of the products of their own growth; and also by passage through animals either susceptible or resistant to their action, is it too much to suppose that the tubercle bacilli may also be altered in form, virulence, or in vigor of growth when cultivated under unusual conditions? Experiments have shown that some tubercle bacilli may be transformed in form, pathogenicity, and cultural characteristics as well. More than this, cultures which seem incapable of attacking certain species of test animals with the degree of severity which one would expect, in view of their average virulence for animals of other species, may be brought to change their peculiar affinities until they will prove virulent for a species of animals formerly resistant.

An interesting experiment was recently made in the Pathological Division by means of cultivating a bovine bacillus upon sterilized human blood. After three months' growth upon this medium, the bacilli became transformed into long, beaded organisms which grew more readily than upon dog or bovine serum, and closely simulated the human type of bacilli. They had evidently assumed a more saprophytic character and were capable of more rapid accommodation to cultural exigencies as a result of some constituent of the human blood.

The experiments which have been made in a comparative study of tubercle bacilli from various sources have demonstrated that the bovine bacillus is distinguished from other forms of bacilli chiefly by a higher degree of virulence as well as by certain less important morphological and cultural characteristics, but it was likewise found that there are also tubercle bacilli of human origin which cannot be distinguished from those derived from cattle. Furthermore, these differences are not constant, for transition forms are observed in different hosts which are

not typical of the forms usually peculiar to that host. Nor is the virulence of the bovine or human bacillus always the same, but varies within a wide range. In fact, the virulence of certain bacilli from both man and animal have been found to become accentuated in consequence of passage through a series of animals, and on the other hand, the pathogenesis has been diminished by long development on artificial culture media. Therefore tubercle bacilli should be regarded as polymorphic organisms of a single species of bacteria which have become differentiated by their environment in the different hosts, and the variations which afterwards form among individual varieties are transitory forms which have not had sufficient time nor proper nutriment to become transformed into the typical varieties.

Relation to Public Health.

The latest researches into the question of intertransmissibility of tubercle bacilli from various sources have shown that Koch's doctrine, enunciated in 1901, is not warranted. Variations do occur among tubercle bacilli as among other forms of bacteria, but they are not constant. It is well known that Koch demanded as a criterion of the animal origin of tuberculosis observed in man the proof that cattle when injected with human tubercle bacilli will contract tuberculosis. Decisive proofs of such infection have now been obtained not only by the German Commission on Tuberculosis, which was appointed at Koch's request, but also by the Royal English Commission, besides numerous French, Dutch, English, Scandinavian, Austrian and American investigators. In fact, there have been so many instances on record of bovine tubercle bacilli having been recovered from human tissues, and of instances of butchers and others receiving accidental infections of the skin directly from bovine lesions that it appears entirely proven that man is susceptible to tuberculosis caused by bovine bacilli. While the presence of bovine tubercle bacilli in human beings is seen to be not infrequent, no definite conclusions can at present be drawn as to the extent of

such infection owing to the lack of data on the subject. But the fact that tubercle bacilli of one species may be transmitted to an animal of a different species or to man makes it apparent that any preventive methods for controlling tuberculosis, to be successful, must take into consideration all species of animals which are susceptible to tuberculosis.

The most frequent sources of danger from bovines to man, and the only ones to be considered, are the milk and meat of tuberculous animals. The fact that most of the cases of bovine tuberculosis which occurred in man were cases of infantile tuberculosis points with grave suspicion to the milk rather than the meat supply. That milk coming from a tuberculous udder is capable of transmitting the infectious principle requires no further argument. It has been equally established that in advanced generalized tuberculosis the udder may excrete tubercle bacilli without showing any indication of being affected. Other experiments have demonstrated that tubercle bacilli may be eliminated from cows affected with tuberculosis to a degree that can be detected only by the tuberculin test, so that in a herd of cows in the various stages of tuberculosis it is to be expected that some of them will excrete tuberculous milk, which, when mixed with other cows' milk, makes the entire product dangerous. The ease with which tubercle bacilli may be eliminated by the udder was strikingly illustrated by an experiment conducted by the Royal British Commission in which a cow, injected with human tubercle bacilli under the skin of the shoulder, began excreting tubercle bacilli from the mammary gland seven days later, and continued to do so until its death from generalized tuberculosis thirty days after inoculation. It has been shown by Gaffky and Eber in Germany, and Schroeder in this country, that even when the tubercle bacilli are not excreted by the udder, the dust and manure of the stable where the diseased animals are kept are in many cases contaminated with tubercle bacilli. This contaminated material may readily pollute the milk during the process of milking, even though the milk comes from a healthy cow.

The importance of this method of infecting milk cannot be too greatly emphasized when it is known that cattle with slight alterations in the lungs frequently raise tuberculous mucus into the pharynx while coughing, and by swallowing this material contaminate the fæces.

Having ascertained the grave and positive danger to man of tuberculous milk, it becomes necessary to determine if tuberculous meat contains the infectious agent, and if it can reproduce the disease in animals fed or injected with it. Through the extensive experiments of numerous investigators much evidence has been accumulated to the effect that meat of animals affected with generalized tuberculosis may contain virulent tubercle bacilli. The experiments of Kastener, Hoefnagle, and Westenhoeffer are especially of interest as well as of great importance because they took into consideration the extent, character and condition of the tuberculous lesions. In one series of tests Kastener fed to experiment animals meat from cattle which were affected with localized tuberculosis, the carcasses of which had been passed for food. In this series he could not obtain a single positive result, while with meat of condemned tuberculous carcasses his results in every instance were positive. It is therefore apparent that the condemnation of tuberculous meat is carried out not only from an esthetic standpoint, but because there is sufficient proof at hand which points to the danger which might arise from the ingestion of such meats. For this reason it appears desirable to have all products coming from animals affected with tuberculosis, as well as the slaughter and disposal of such animals, placed under the supervision of an experienced inspector, since the flesh of all tuberculous animals is not equally dangerous, and consequently there must be rational discrimination between the meat of slightly or locally diseased carcasses, the flesh from which has experimentally given negative results, and the more extensively diseased carcasses the meat from which has been proven to be infectious.

Ophthalmo-Tuberculin Test.

The symptoms of tuberculosis in cattle are not sufficiently prominent except in advanced cases or when superficially located to enable one to diagnose this disease by the ordinary methods of physical examination. Consequently such adventitious aids to diagnosis as animal inoculation, biological test, serum agglutination and the tuberculin test are made use of in arriving at a definite opinion relative to the presence or absence of this disease. The value of all but the last of these is discounted by the technique required and their impracticability, while the tuberculin test (subcutem) is most satisfactory and is the best diagnostic method known for the disease.

Although the subcutaneous tuberculin test in bovines, when correctly applied, proves reliable in about 97 per cent. of cases, there still remains a prejudice against this form of testing among the farmers and dairymen which has been difficult to overcome.

It is therefore natural that any new method which may facilitate the diagnosis of tuberculosis should be accompanied by great interest. Of the various biological methods of diagnosing tuberculosis, the greatest interest has been manifested in the last few months in the cuti-reaction of von Pirquet and the ophthalmo-reaction of Wolff-Eisner and Calmette.

The very favorable results which were reported from the application of both of the above-mentioned methods excited a great deal of interest amongst investigators and soon numerous results of the experiments were published, which, however, were not uniformly favorable for either of these tests. The best results, however, were apparently obtained from the ophthalmo-reaction, and if this method should prove reliable the simple method of its application would greatly aid in the early diagnosis of tuberculosis. Thus, up to the present time the ophthalmo-tuberculin test has been principally applied to the human, especially infants, and while the results obtained in these tests are very encouraging, the reactions and failures were never, or only in the earliest instances, verified by post-mortem examination.

It appears therefore desirous to test the reliability of this reaction on animals in which the reaction may be controlled by autopsies or by the known reliability of subcutaneous tuberculin test. This has been undertaken by various investigators, and while many of the results obtained were unsatisfactory, the general findings are somewhat encouraging. The different results which were obtained might possibly be attributed to the various preparations of tuberculin which have been employed and the different strengths in which the tuberculin was applied. The varied results thus far obtained make the reliability of the ophthalmo-tuberculin test for the diagnosis of tuberculosis in bovines questionable, and it will be necessary to perfect this method by further experiments. If this method of testing should prove as reliable as the subcutaneous tuberculin test, it would unquestionably greatly facilitate the eradication of tuberculosis, inasmuch as the farmers and dairymen would not object to this external method of applying the test as they do to the subcutaneous tuberculin injection.

The changes in the eye resulting from a marked reaction are characteristic; photophobia and lachrymation are the first indications of the reaction which may be followed by more severe symptoms as marked congestion of the conjunctiva, a whitish film-like exudate over the bulbar conjunctiva, and a grayish-yellow discharge from the eye which, running down the face, forms crusts. The test is applied to only one eye, and in the reaction the other or control eye should remain normal.

Thus far the ophthalmo-tuberculin test cannot be recommended for general practice as a method of diagnosing tuberculosis of bovines, and it will require further work and perfection before it should pass from its experimental stage and be adopted in place of the present reliable subcutaneous application.

Prevalence.

It is a well-known fact that tuberculosis is the most serious disease with which the American farmer has to contend. It is

widely spread among cattle and is yearly appearing with increased frequency among our hogs. Centres of poultry infection are recently being recorded in various parts of the country, which fact is naturally leading to great uneasiness among breeders of pure-bred fowls. In addition to the farmer and poultryman, the owners and keepers of menageries and zoological parks are forced to pay heavy animal toll to the ravages of tuberculosis. Monkeys and deer when kept in captivity rapidly succumb to tubercular infection, while animals of the raccoon and beaver families, and occasionally some member of the bird tribes, will give evidence of their susceptibility to tuberculosis.

Infection of cattle and hogs is most frequently seen in districts in which dairy interests are prominent, but the arid southwestern plains and even the Pacific Mountain regions are not totally free. The losses from tuberculosis to the farmers of this country can hardly be appreciated or calculated. There are at present approximately 19,000 carcasses of beef and 66,000 carcasses of hogs condemned annually by the inspectors of the Bureau. State dairy inspectors condemn numerous dairy cows for tuberculosis in addition to these, and many others are slaughtered at small private slaughter houses, where no record of numbers or values is kept. Breeders of pure-bred cattle are also forced to bear heavy burdens through losses of valuable breeding animals and through the disturbance of their trade with would-be purchasers. In this connection it may be stated that the breeder of pure-bred stock who is in a position to warrant his stock as free from tuberculosis will find such guarantee to be a valuable recommendation for his herd, and satisfactory sales will no doubt result, which could not be made from a herd in which tuberculosis was suspected.

The recent awakening of interest in the matter of obtaining pure milk supplies for our various cities and towns, forty-one of which have tuberculin test ordinances, has led to the application of this test to many dairy herds. The extent of tuberculosis detected in these cases by the use of Bureau tuberculin varies from 2.79 to 19.69 per cent. in the several states.

The increasing frequency with which tuberculosis is being discovered among flocks of fowls and pigeons calls attention to another source of considerable loss through this disease. These centres of avian tubercular infection are widely separated, having been found on the Pacific coast, along the Hudson river, and at intermediate points.

In all of the flocks attacked and examined it has been noted that the spread of the disease among the birds has been very rapid, and so virulent has the infection in these cases proved, that only few of the individuals in the flock escape after the infection has become established. The disease is spread readily from bird to bird by way of the digestive tract, and from the well-known habit of fowls picking their food out of dirt, and even from manure piles, it is evident that the infection will be quickly taken up by the healthy members of the flock.

Federal Co-operation in Suppressing Tuberculosis.

You have already learned from the preceding report of the various methods recommended for the suppression of tuberculosis which should be carried out by the stock raisers and the various state authorities, but the co-operation which will be expected from the Federal government was not discussed.

Inasmuch as there are already 13 states which are enforcing laws regarding the entrance of tuberculous cattle, other states will naturally follow sooner or later in order to avoid becoming the dumping-ground of tuberculous cattle not permitted entry into the first-mentioned states. While the laws in these states differ much in detail, the general plan is to require that cattle introduced for breeding or dairy purposes be tested with tuberculin and their healthfulness certified by the authorities of the state from which they originate, or failing in this, by the authorities of the state in which they are destined to remain. With a large number of states demanding the tuberculin test for all breeding and dairying cattle entering therein the establishment of tuberculin testing stations at appropriately situated stock yards

for the inspection of cattle being shipped interstate will no doubt become a necessity both from an economic as well as a sanitary standpoint, and such work will naturally come under the supervision of the Federal government. The Bureau of Animal Industry is doing much toward reducing and preventing tuberculosis in the United States, which action is indicative of what may be expected in the future. About eight years ago the Bureau endeavored to assist the individual states in guarding against infection from foreign countries by requiring cattle imported from these countries to be accompanied by a certificate of healthfulness shown by a tuberculin test made by an official veterinarian, while those coming through the quarantine stations were tested by the superintendents during the period of detention. Two objectionable features led to a change in these methods. The first was the frequently unsatisfactory certificates of tests made in the country of origin, and second, the loss which was inevitable in case any of the imported cattle reacted after reaching the United States. To overcome these objections, the Bureau in 1900 detailed one inspector to Great Britain and another along the Canadian border for the purpose of testing all cattle intended for export to this country, in order that only healthy cattle would be brought in. This practice still continues in Great Britain, but reciprocity has been established with Dr. Rutherford's department by which we accept the tuberculin test certificates from any of his official veterinarians. The benefit derived from this regulation is indicated from the fact that the inspector in Great Britain has rejected on account of tuberculosis as high as 33 per cent. of all the cattle tested by him in one year for shipment to this country, and a large number of badly diseased herds have been located from which no importations are permitted. Similarly, the Bureau has had occasion to tuberculin test a large number of pure-bred cattle intended for shipment into Canada, Argentina, Uruguay, and other countries requiring such certificates of health; and the breeders of full-blooded cattle are also being encouraged and assisted in cleaning their herds by the Bureau. By such testing new centres of in-

fection are located, advice furnished the breeders as to the best methods for controlling the disease, and the state authorities notified for such action as they deem advisable. Furthermore, the meat inspection service during the past two years has been used as an adjunct in determining the extent and prevalence of tuberculosis in individual states. This has been accomplished by obtaining all available information concerning each lot of tuberculous animals slaughtered, and in case these animals can be traced back to the farm whence they came, the breeder or feeder, as the case may be, is notified concerning the post-mortem findings on his animals, and likewise the state veterinarian or sanitary officer is informed, in order that the testing of the remainder of the herd and the disinfection of the premises may be properly carried out. In order to prevent as far as possible the interstate traffic which has evidently been going on in cattle that had reacted to the tuberculin test the Secretary of Agriculture last fall issued a regulation classifying tuberculosis as one of the contagious diseases to be controlled and making it an offense to drive or transport cattle that were known to be tuberculous across state lines. While the fact that such action is illegal will not cause it to be universally obeyed, at the same time law-abiding citizens will conform with the law, and with the earnest prosecution of all cases of violation detected, this practice will be greatly reduced. Notice has been furnished railroads and steamship companies, cattle raisers and stock papers that it is a violation of the Federal statutes to ship animals affected with tuberculosis from one state to another, and the only hardship it occasions is with stock owners in one state who are unable to send their cattle to a packing house centre located in close proximity in an adjoining state. However, the benefits of such an order are so superior that they greatly overcome the few disadvantages. Congress has also granted power to the Department of Agriculture to examine and report upon the results obtained from the use of various kinds of tuberculin sold in this country. This power of keeping the public informed upon the value of such an important biological product as tuberculin came none too soon

for worthless tuberculin has been found on the market, and there can be no question that many inconsistent results—results which were embarrassing to the testers, and caused dissatisfaction among the stockmen, from the use of different tuberculins can be explained by the inertness of certain of these products. The testing of a few dairy herds near the District of Columbia showed the widespread distribution and serious extent to which tuberculosis prevailed among the cattle in that vicinity. This knowledge, coupled with the agitation of the citizens of Washington for a pure milk supply, led the Bureau to volunteer the testing of all herds supplying Washington with milk, providing the owners would agree to disinfect the premises afterwards, and endeavor so far as possible to keep their herds free of this disease. The herds belonging to government institutions, and other public organizations, in various parts of the country, have likewise been tested by the Bureau not only as a repressive measure but also as an object lesson for the owners of other dairy herds in their vicinity.

Since 1893 the Bureau has been constantly assisting some of the states in controlling tuberculosis, preparing and distributing tuberculin to their state and municipal health authorities and sanitary officers, but during the last few years the demand has been greatly increased, 215,000 doses having been sent out in the past year. Before adjourning last May Congress made an appropriation of $25,000 for the study of the extent and prevalence of tuberculosis in the United States. In order to determine these facts both quickly and accurately the work will necessarily be undertaken in those states where co-operation can be obtained, not only from the standpoint of organization and funds but also with reference to having proper laws regarding the entry of tuberculous cattle; in other words, to help those states that are endeavoring to help themselves. Already several veterinary inspectors have been stationed at important shipping points for the purpose of accommodating shippers who desire to have cattle tested which are destined for states requiring the tuberculin test certificates, and while this work at present is entirely volun-

tary, the establishment of a large number of such points would probably follow if more states had compulsory tuberculin test laws upon their statutes. It will, therefore, be seen that a constantly increasing activity relative to the suppression of tuberculosis is being manifested by the Bureau of Animal Industry, and I believe the day is not far distant when all breeding and dairy cattle crossing state lines will be required to show a tuberculin test bill of health. A great impulse will be given this subject in consequence of the educational propaganda which will result from the International Congress on Tuberculosis to be held in Washington this month. If the states themselves would all obtain such laws the enforcement of an order for the testing of the above classes of cattle entering interstate commerce, and the appointment of veterinary tuberculin testers by the government to all the principal shipping centres would be more likely to follow. And it would be long before the country would be divided into districts with a chief inspector in charge, for the eradication of tuberculosis, as it is at present in the South for the repression of the fever tick, and in the West for the extermination of the cattle and sheep scab mites. The effort to control tuberculosis is a most reasonable and proper one, and if conservatively directed, should receive the support of every friend of the cattle industry. Not only is tuberculosis a disease to be dreaded because of the value of the cattle which it injures or destroys, but its existence is believed by the best sanitary authorities to be a serious menace to the health of the consumers of meat and dairy products. The individual states therefore have good reason for desiring to stop the importation from other states of tuberculous animals, and for adopting measures intended to lessen or control the disease within their own borders. The herds of the United States are far less seriously affected with tuberculosis than are those of European countries, and the proportion of animals affected in Europe indicates both the danger which threatens our herds, if the disease is allowed to progress here, and the importance of thorough measures to prevent it from becoming as prevalent in this country as on the Continent.

A CLINICAL EXAMINATION OF THE BLOOD OF GLANDERED HORSES.*

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Though a great deal of work has been done, especially of late, on the blood of horses affected with glanders, comparatively few clinical examinations of the blood have been reported. Mikrukow found in horses and cats that the red corpuscles are diminished in two or three days after infection and sink toward the end of the disease to one-third the normal number, that the hemoglobin decreases gradually, and that the red corpuscles are smaller in glandered animals than in healthy ones. Schindelka includes glanders among the diseases in whose course there is a decrease of hemoglobin. Prus reports that the red corpuscles are diminished, 4-5 million being found, and that the blood-plates are increased to 700,000-1,600,000 per cmm. The leucocytes have been found increased in the cases reported. Macchia found them increased 24 hours after inoculating an ass. The third day there were 17,500 per cmm., the sixth day 31,250, the eighth day 34,792, the ninth day 60,000. The fourteenth day the ass died of acute glanders. Mikrukow examined glandered horses and cats and found that the leucocytes increased till toward the end of the disease they were at least three times the normal number. Noniewicz examined three glandered horses and found the leucocytes increased, in a case of chronic farcy being in the proportion of one leucocyte to twenty red corpuscles, and in a case of chronic glanders, early stage, being in the proportion of one to thirty. Prus found that the leucocytes are increased in glandered horses to 20,000-60,000. Of the leucocytes he found the polymorphonuclears in greater than normal numbers and percentages (polynuclear leucocytosis). He

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found the following percentages of the several varieties: Eosins, 3 per cent.; mast cells, 2 per cent.; basophile cells, .5 per cent.; neutrophile cells, 75 per cent.; small lymphocytes, 10 per cent.; large lymphocytes, 2 per cent.; and transitional cells, 3 per cent. Christot and Kiéner report a leucocytosis in acute glanders in man, horse and guinea pig and in chronic cases in two horses and a guinea pig. Bidault found a polynuclear leucocytosis in horses with the following percentages:

1. Chronic case with nasal and pulmonary lesions, cachexia, mononuclears, 21 per cent.; polynuclears, 78 per cent.; eosins, 0 per cent.

2. Chronic case with pronounced nasal lesions, discrete pulmonary lesions, in good condition, lymphocytes, 8 per cent.; mononuclears, 18 per cent.; polynuclears, 71 per cent.; eosins, 2 per cent.

3. Subacute, farcy, mastitis, lymphocytes, 2 per cent.; mononuclears, 12 per cent.; polynuclears, 85 per cent.; eosins, 1 per cent.

Prus and Bidault both found that mallein produces a leucocytosis in both non-glandered and glandered horses; but that the leucocytosis is much more pronounced in glandered horses.

From the cases reported it seems that the examinations offer results lacking in certain details and conflicting in some of the others. The present study was undertaken with the purpose of learning something more definite as to the changes that occur in the blood of horses affected with glanders.

The examinations of horses 1-15 were made by one of us (Pearce) during the summer of 1907, while assisting Dr. G. H. Berns, of Brooklyn, N. Y. Our sincere thanks are due Dr. Berns for his kindness in affording the opportunity and for facilities in making the examinations. Dr. Berns tested a large number of horses for glanders by the agglutination method. The cases Nos. 1-15 are some of those that gave a reaction by this method. In cases where the mallein test was made, the blood was examined before the mallein was injected, except in the case of the second examination of horse No. 7.

The blood was procured for examination from the ventral surface of the tail where free from hair in cases 1-3. In the remaining cases it was obtained from the inside of the lip near the commissure. The puncture was made with a narrow-bladed scalpel, guarding it with the fingers to insure making a puncture only sufficiently large to obtain the proper amount of blood. In the tail it requires a rather deep puncture, while in the lip it was only necessary to puncture the skin. The site of puncture was thoroughly cleansed, then dried. The first few drops of blood were wiped off with a towel, then blood was obtained for examination. The blood was wiped off if exposed to the air for more than a few seconds. The red corpuscles and leucocytes were counted by means of the Thoma hematocytometer having the Zappert-Ewing ruling, both red corpuscles and leucocytes being counted in the same preparation. For the number of red corpuscles, the corpuscles in 100 squares, for the leucocytes the number in the entire ruled space, 9/10 cmm., were counted. Toisson's fluid was used to dilute the blood. Smears were stained with Jenner's stain and differential counts of the varieties made from these. From 500 to 1,000 leucocytes were counted in each case.

The following are brief descriptions of each case examined.

Case No. 1.—This was a large bay draft gelding, advanced in years, in good condition. He showed no clinical symptoms except that he was off his feed. The temperature fluctuated from day to day; at one time being high, at another time appearing normal. This is a chronic case and gave an agglutination reaction of 1 :800. Red corpuscles, 6,148,000 per cmm.; leucocytes, 6,640 per cmm.; lymphocytes, 30 per cent.; large mononuclears, 5.8 per cent.; polymorphonuclears, 61.5 per cent.; eosinophiles, 2 per cent.; mast cells, .4 per cent. The blood is practically normal for a horse of this age, except that the number of red corpuscles is low. It is to be noted that there were no clinical symptoms except the appetite was poor and the temperature fluctuating.

Case No. 2.—This case was a bay gelding roadster, ten years of age. The submaxillary lymph gland was enlarged, having

a grapy feeling; also a whitish nasal discharge present. Horse did not eat well and lost flesh. He also had a persistent temperature, about 103 degrees. Chronic case. The blood agglutinated 1:800. Red corpuscles, 6,174,000; leucocytes, 9,555; lymphocytes, 18 per cent.; large mononuclears, 5.6 per cent.; polymorphs, 73 per cent.; eosins, 2.9 per cent.; mast cells, .1 per cent. The examination of the blood reveals a diminution of red corpuscles and a polymorphonuclear leucocytosis. The lymphocytes are present in normal numbers, though the percentage is low. The increase above the normal is in the polymorphs.

Case No. 3.—Bay, driving mare, weighing about 1,100 pounds and advanced in years. Animal was very much emaciated. The lymph glands over the surface of her body were enlarged and the lymphatics leading to the glands were corded. The submaxillary lymph gland was enlarged, had a nodular structure, and was painful upon palpation. Some of the cutaneous lesions were necrotic and discharging while the others appeared as small tumefactions. There was a bi-lateral, opaque nasal discharge, and upon careful examination, ulcers, characteristic of glanders, were found on the nasal septum. As the case showed clinical symptoms the Board of Health destroyed the animal the following day. The agglutination test was positive 1:800. Red corpuscles, 7,736,000; leucocytes, 20,750; lymphocytes, 15 per cent.; large mononuclears, 4.5 per cent.; polymorphs, 80 per cent.; eosins, none; mast cells, .17 per cent. The number of red corpuscles is normal or somewhat above the normal. This is interesting, as the mare was much emaciated. The explanation is probably that there is reduction in the total amount of blood due to exudation. The lungs were probably involved to a considerable extent. Under the circumstances this high count of red corpuscles is decidedly unfavorable. The leucocytes are much increased, the increase being largely in the polymorphs. The absence of eosinophiles indicated that the disease is actively progressing.

Case No. 4.—Sorrel driving mare, weighing about 1,000 pounds. Mare had been brought from Kentucky and was kept

alone in the stable as a pet of the family. When first seen, the animal was suffering from a slight fever, 103 degrees, and had a unilateral, opaque nasal discharge. The submaxillary gland on the right side was enlarged. Mare did not eat well, so some of her blood was drawn and the agglutination test made. It gave a positive reaction, 1 :800. Red corpuscles, 6,500,000; leucocytes, 6,000; lymphocytes, 30 per cent.; large mononuclears, 11 per cent.; polymorphs, 58 per cent.; eosins, .9 per cent.; mast cells, .3 per cent. The blood appears normal, except that the number of red corpuscles is diminished. The mare was examined about a month later. The nasal discharge had dried up and there was no fever. The animal in the meantime had been given potassium iodide and Fowler's solution. The agglutination test was again made with the same result as before, a reaction 1 :800.

Case No. 5.—Black draft gelding weighing about 1,600 pounds, about fourteen years of age and in good flesh and condition. Animal appeared healthy from all external appearances, except that the temperature remained about 102 degrees and on the inside of the left hind leg, close to the body, were found some slight enlargements which were diagnosed as farcy buds. The agglutination test was made with a reaction of 1 :500. The horse was destroyed as a case of farcy. Red corpuscles, 6,500,000; leucocytes, 9,444; lymphocytes, 22 per cent.; large mononuclears, 10 per cent.; polymorphs, 65 per cent.; eosins, 1 per cent.; mast cells, .1 per cent. The red corpuscles are diminished; the leucocytes moderately increased, the increase being in the polymorphs and large mononuclears.

Case No. 6.—White draft gelding, fourteen to fifteen years of age, weighing about 1,500 pounds. When seen the animal appeared in good flesh, although at the time he was not eating well. He had a temperature of 102 degrees F., and the owner said it fluctuated from day to day. No other clinical symptoms were observed. The agglutination test was positive, 1 :800. A short time before the animal had an abscess in the submaxillary space. At the time of this examination the abscess had dis-

charged and was nearly healed. Red corpuscles, 7,142,000; leucocytes, 7,600; lymphocytes, 26 per cent.; large mononuclears, 7.8 per cent.; polymorphs, 55 per cent.; eosins, 9 per cent.; mast cells, .5 per cent. The blood is apparently normal, except for a large number of eosinophiles. The lesions of glanders were evidently not sufficient to produce a noticeable effect on the blood.

Case No. 7.—Bay gelding roadster, ten years of age, weighing about 1,250 pounds. There were no observable lesions. The animal did not eat well and lost condition. The temperature varied from 101 to 103 degrees F. The blood reacted to the agglutination test 1 :800. Red corpuscles, 6,300,000; leucocytes, 12,000; lymphocytes, 14 per cent.; large mononuclears, 4.7 per cent.; polymorphs, 79 per cent.; eosins, 1.3 per cent.; mast cells, .3 per cent. The red corpuscles are diminished; the leucocytes increased. The increase in leucocytes is confined to the polymorphonuclears, the other varieties being present in normal numbers.

The evening of the same day mallein was injected at 10 p. m., with the following result:

10 p. m. 2 cc. mallein injected. 7 a. m., 103.8 degrees; 9 a. m., 104.4 degrees; 11 a. m., 104.8 degrees; 2.30 p. m., 105.4 degrees; 6 p. m., 103.5 degrees. A typical mallein reaction Where the injection of mallein was made on the side of the neck there appeared a large raised swelling about the size of the flat of the hand, painful on palpation. The lymphatics leading to the swelling were raised and corded. The horse was destroyed. Blood for examination was obtained at 2.30 p. m. when the temperature was 105.4 degrees. Red corpuscles, 6,280,000; leucocytes, 15,000; lymphocytes, 12 per cent.; large mononuclears, 3 per cent.; polymorphs, 84 per cent.; eosins, .09 per cent.; mast cells, .16 per cent. The effect of the reaction to mallein was an increase in the polymorphonuclear leucocytes, the other varieties showing no increase.

Case No. 8.—Gray mare, advanced in age, weighing about 1,300 pounds. The left submaxillary lymph gland was much enlarged, having a nodular feeling and was very painful. On

each side of the face there was an ulcer which was discharging a purulent fluid of a yellowish-white color. There was also a unilateral, thin, slightly opaque, nasal discharge from the left nostril. This animal gave a strong agglutination reaction 1:800 and was destroyed. Red corpuscles, 6,000,000; leucocytes, 16,000; lymphocytes, 11 per cent.; large mononuclears, 5 per cent.; polymorphs, 82 per cent.; eosins, .45 per cent.; mast cells, .5 per cent. The red corpuscles are diminished. The leucocytes are much increased, a marked polymorphonuclear leucocytosis. The number of large mononuclears is high, about double the normal.

Case No. 9.—Gray draft gelding, weighing about 1,600 pounds. Five years of age. No external symptoms could be found. He gave a positive agglutination reaction 1:800; but did not react to mallein. Red corpuscles, 6,500,000; leucocytes, 6,500; lymphocytes, 24 per cent.; large mononuclears, 6.9 per cent.; polymorphs, 61 per cent.; eosins, 6.3 per cent.; mast cells, .59 per cent. The red corpuscles show a diminished number. The total number of leucocytes and the percentages of the several varieties except the eosinophiles are normal. The eosins are increased.

Case No. 10.—Bay draft gelding, weighing about 1,650 pounds, five years old. The submaxillary gland was enlarged and very painful on palpation. Animal did not eat well and had a temperature of 103 degrees. The agglutination test was positive 1:800. Red corpuscles, 6,400,000; leucocytes, 14,000; lymphocytes, 19 per cent.; lare mononuclears, 3.7 per cent.; polymorphs, 74 per cent.; eosins, .7 per cent.; mast cells, .7 per cent. The examination shows a diminution of the red corpuscles and a polymorphonuclear leucocytosis. The leucocytes also show an increased number.

Case No. 11.—Bay draft gelding, advanced in years, weighing about 1,500 pounds, much emaciated. There were painful lymphatic nodules over the chest and forelegs. Some of these were suppurating and discharging while others appeared as tumefactions. Animal refused to eat and had a temperature of 104 degrees. He gave a positive agglutination reaction, 1:800 and

was destroyed. Red corpuscles, 4,195,000; leucocytes, 8,666; lymphocytes, 23 per cent.; large mononuclears, 5.5 per cent.; polymorphs, 68 per cent.; eosins, 1.2 per cent.; mast cells, .7 per cent. The red corpuscles show a marked diminution. The leucocytes are somewhat increased in number, the increase being in the polymorphonuclears.

Case No. 12.—Buckskin gelding, weighing about 1,250 pounds, advanced in years. When first seen it was thought that the animal was suffering from pleurisy, was treated accordingly and later brought to the hospital. About the third day after coming to the hospital he broke out with lymphatic swellings over the neck, chest and fore limbs and a bi-lateral, dirty, opaque discharge from the nostrils set in. Temperature remained about 105 degrees. The blood gave a strong agglutination reaction, 1:800. Later the animal was destroyed. He was apparently taken with an attack of acute glanders. Red corpuscles, 5,600,000; leucocytes, 25,000; lymphocytes, 9 per cent.; large mononuclears, 5.4 per cent.; polymorphs, 85 per cent.; eosins, none; mast cells, none. The red corpuscles are much reduced. Compare with the condition in Case No. 3. There is a marked polymorphonuclear leucocytosis. The number of large mononuclears is also increased. No eosinophiles were observed.

Case No. 13.—Brown gelding roadster, weighing about 1,000 pounds, and fifteen years of age. The history of the case was that the animal was not eating. Temperature was found to be 103 degrees. There was a slight nasal discharge and on the septum were scars which appeared to be healed glanders ulcers. The blood gave a positive agglutination reaction, 1:800. Red corpuscles, 4,700,000; leucocytes, 8,000; lymphocytes, 23 per cent.; large mononuclears, 5.7 per cent.; polymorphs, 68 per cent.; eosins, 2.2 per cent.; mast cells, .5 per cent. The number of red corpuscles is much below the normal. The leucocytes are somewhat increased, the increase being in the polymorphonuclears.

Case No. 14.—Buckskin draft gelding, weighing about 1,600 pounds and twelve to fourteen years of age. Animal was considerably run down by hard work, but showed no symptoms of

glanders. This was one of the reactors in a stable that was tested by the agglutination method; reacted 1:800. Red corpuscles, 7,428,000; leucocytes, 12,000; lymphocytes, 13 per cent.; large mononuclears, 4.6 per cent.; polymorphs, 80 per cent.; eosins, .57 per cent.; mast cells, .3 per cent. In this case the number of red corpuscles is high considering that the animal was not in good condition; but the number is within the normal limits for a horse. There is a marked polymorphonuclear leucocytosis, the other varieties being present in normal numbers.

Case No. 15.—Gray draft gelding, advanced in years and weighing about 1,500 pounds. When first seen the animal was not eating well and had a temperature of 103 degrees F. The blood was tested and found to react at a dilution of 1:800. When this reaction was reported another physical examination was made. In the meantime the animal had developed small lymphatic swellings on the neck, breast and fore limbs. He was then tested with mallein, showing a typical reaction. Later the animal was destroyed. Red corpuscles, 6,500,000; leucocytes, 10,000; lymphocytes, 12 per cent.; large mononuclears, 3.4 per cent.; polymorphs, 82 per cent.; eosins, .5 per cent.; mast cells, .19 per cent. The red corpuscles are diminished. There is a well-marked polymorphonuclear leucocytosis.

Case No. 16.—Bay draft gelding about 8 years old, in good condition and weighing about 1,500 pounds. The animal had a viscid, unilateral, nasal discharge. The submaxillary gland on the same side was enlarged and indurated. The blood gave a positive agglutination reaction; a few days later a mallein test was made, with a typical reaction. Later the discharge ceased. The horse is now at work and is apparently well. The examination of the blood gave the following: Red corpuscles, 6,972,000; hemoglobin, 76 per cent.; leucocytes, 8,444; lymphocytes, 23.8 per cent.; large mononuclears, 5.2 per cent.; polymorphs, 67.6 per cent.; eosins, 3.2 per cent.; mast cells, .2 per cent. This shows a reduction in the amount of hemoglobin and a moderate increase in the number of leucocytes. The increase is mainly in the polymorphonuclears, the other varieties showing little, if any, variation from the normal numbers.

The following tables, I and II, show the number of red corpuscles, leucocytes and the percentages of the several varieties of leucocytes in the cases examined:

TABLE I.—Numbers of Red Corpuscles and Leucocytes in Cases of Glanders in Horses.

Case No.	Sex.	Age.	Temp.	Red Corpuscles.	Leucocytes.	Remarks.
1	g	old	fluct.	6148000	6640	no symptoms
2	g	10	perst.	6174000	9555	submax. gl. enlarged, ulcers.
3	f	old	105	7736000	20750	nasal discharge, submax. gl. enlarged, emaciated.
4	f	old	103	6500000	6000	submax. gl. enlarged, nasal discharge.
5	g	14	102	6500000	9422	few farcy buds.
6	g	15	102	7142000	7600	no symptoms.
7	g	10	102	6300000	12000	no symptoms.
7	..	..	105.4	6280000	15000	typical mallein reaction.
8	f	old	104.5	6000000	16000	ulcers on face, nasal discharge.
9	g	5	norm.	6500000	6500	no symptoms.
10	g	5	103	6400000	14000	submax. gl. enlarged.
11	g	old	104	4195000	8666	emaciated, farcy.
12	g	old	105	5600000	25000	nasal discharge, farcy.
13	g	15	103.5	4700000	8000	slight discharge, scars.
14	g	13	....	7428000	12000	no symptoms.
15	g	old	103	6500000	10000	small lymph. swellings.
16	g	8	norm.	6972000	8444	viscid discharge.

TABLE II.—Differential Counts of Leucocytes in Cases of Glanders in Horses.

Case No.	Leucocytes Per cmm.	Varieties of Leucocytes.									
		Lympho-cytes.		Large Monuclears.		Polymorph.		Eosins.		Mast Cells.	
		%	No.	%	No.	%	No.	%	No.	%	No.
1	6640	30	1992	5.8	385	61.5	4084	2.	133	.4	27
2	9555	18	1720	5.6	535	73.	6975	2.9	277	.1	10
3	20750	15	3113	4.5	934	80.	16600	...	...	.17	35
4	6000	30	1800	11.	660	58.	3480	0.9	54	.3	18
5	9422	22	2074	10.	942	65.	6124	1.	94	.1	9
6	7600	26	1976	7.8	593	55.	4180	9.	614	.5	38
7	12000	14	1680	4.7	564	79.	9480	1.3	156	.3	36
7	15000	12	1800	3.	450	84.	12600	0.09	14	.16	24
8	16000	11	1760	5.	800	82.	13120	0.45	72	.5	80
9	6500	24	1560	6.9	440	61.	3965	6.3	410	.59	38
10	14000	19	2660	3.7	518	74.	10360	0.7	98	.7	98
11	8666	23	1993	5.5	477	68.	5894	1.2	104	.7	61
12	25000	9	2250	5.4	1350	85.	21250	...	...	...	..
13	8000	23	1840	5.7	456	68.	5440	2.2	176	.5	40
14	12000	13	1560	4.6	552	80.	0600	0.57	68	.3	36
15	10000	12	1200	3.4	340	82.	8200	0.5	50	.19	19
16	8444	23.8	2010	5.2	439	67.6	5708	3.2	270	.2	17

Summary.—Only two of the cases had a normal count of red corpuscles. These two cases were so slightly affected that no clinical symptoms were observed. In one case, a very pronounced one, there was polycythemia. In all of the others there was anemia. The lowest count was 4,195,000.

In four cases the leucocytes were practically normal. In these four cases there were no clinical symptoms observed, except in case No. 4 a sticky nasal discharge which dried up later. One of these cases, No. 9, did not react to mallein. The other cases show more or less leucocytosis, the increase being in each case mainly or entirely in the polymorphonuclears. One case examined during the mallein reaction showed a considerable increase in the polymorphonuclears over the number present the day before. The worst cases were those showing the most marked leucocytosis. There were also cases having a marked leucocytosis; but showing no easily detected symptoms of glanders. It is unfortunate that post-mortem examinations of these cases could not be made. It would have assisted a great deal in interpreting the examinations of the blood. However, it seems from the marked increase in the leucocytes that the disease was actively progressing in these cases, Nos. 7 (1st exam.) and 14.

In Nos. 1 and 9 there were no gross clinical symptoms and no changes of importance in the blood. In No. 4 there was a unilateral, nasal discharge and enlarged submaxillary lymph gland on one side while the leucocytes were normal. The nasal discharge had dried up a month later. The blood in this case gave information of prognostic value. Such a result, it seems, might be expected considering the lack of changes in the blood.

It is hoped that studies of the changes in the circulating blood may be made of a large number of cases of glanders. These examinations strongly suggest that the blood may afford valuable information as to the extent of the disease or at least as to whether the disease is actively progressive or not. These examinations also suggest that the examination of the blood is valuable in examination for soundness. Finding the blood as

in case No. 14, for example, shows that that animal is not sound. The condition of the blood in such a case is not diagnostic of glanders; but it shows that something serious is the matter. An animal showing such changes in the blood could not be certified as being sound.

A Shipwreck.—Muggins, gazing intently at a dead dog, in a resigned tone at last said:

"Here is another shipwreck."

"Shipwreck! Where?" blurted out Juggins.

"Where, my dear friend?" quoted M. "There is a bark lost forever."

Juggins growled and passed on.—(*London Fun.*)

New Jersey Commission Will Purchase Stallions in France.—Dr. T. Earle Budd, of Orange, E. T. Gill, of Haddonfield, and Professor F. C. Minckler, of New Brunswick, sailed for France the early part of November as a State Commission, to purchase stallions to improve the class of horses for farmers' uses in New Jersey. After examining 195 horses in the state, the commission found them too light in weight and otherwise deficient in qualities desired. Dr. Budd will visit Professor Liautard while in France.

Animals in Art.—"Sheep are in strong demand in the picture market," said the manager of a department store art gallery. "If I were a painter of animal studies I would confine my work entirely to pictures of sheep. They sell better than any other animal pictures. I suppose the reason is that sheep lend themselves to more artistic poses than other quadruped subjects. They can be more effectively grouped, and the contour of their bodies is in soft and rounded lines well adapted to artistic work. Then sentiment is a factor in the popularity of these pictures. The women and children always are attracted by them, especially by pictures of sheep lost in a storm, which appeal to their sympathies. Cows are a poor second to sheep in popularity, and the demand for horses is very light. The horse is a somewhat conventional subject and one very difficult to portray artistically, while the sheep can be easily and effectively introduced into a picture."—(*Philadelphia Record.*)

THE BIER TREATMENT.

By Prof. Simon J. J. Harger, University of Pennsylvania.

Read at the 45th Annual Meeting of the American Veterinary Medical Association, Philadelphia, 1908.

Although the passive hyperæmia or *stauungs-hyperæmie* of Bier has been but little employed and is of unknown value in veterinary surgery, I am led to present this paper because comparative therapeusis permits us to borrow certain remedial measures from the physician, and vice versa, and often with much success.

The therapeutic effect of active hyperæmia, increased blood irrigation, is well-known and its modus operandi will be spoken of later. When a part suffers an infection or a solution of continuity, reactive inflammation with hyperæmia follows. This, though classed as a pathologic phenomenon, pathology teaches us, is of therapeutic sequence—protective and reparative—preventing further infection and repairing the injured tissues.

To combat, therefore, an inflammation too actively, though this is often the first resort, is not scientific treatment and opposes itself to Nature's healing power unless congestive statis is of such extreme acuteness as to pass beyond the stage required by Her.

The surgeon has for a long time unknowingly imitated nature's method by the use of friction (massage), revulsives, liniments, vesicants, hot air, hot water, Priesnitz dressing, the thermo-regulator of Ullmann, photo-therapy, the actual cautery, etc. Applied over an inflamed joint, tendon or muscle, these cure by increasing the congestion and inflammation of the parts. The actual cautery successfully applied to a spavin or a splint quickens the ostitis and leads to early anchylosis. In side bones it hastens the ossifying process. The nicety of judgment in "firing" a spavin consists in not producing too little irritation but what the co-ossification will be completed and yet not too much to in-

cite an arthritis in adjacent bones unaffected. Exostoses of the phalanges involving the superficial bony layers and brought in close proximity to the cautery are quite amenable to treatment. With an interarticular extension, on the other hand, the diseased epiphyseal cartilage is too large, too deep-seated, and the effects of the cautery too superficial to result in speedy anchylosis.

We call such treatment *counter-irritation,* and yet, how falsely! It is *local excitation,* intensification rather than counter-irritation; the very antithesis of the word-meaning. A cup applied to the chest wall draws the blood to the surface; but the pleura over a corresponding area also becomes congested. Cauterization of skin of the back induces congestion of the deep muscles, vertebræ, menenges and spinal cord. Iodin and local astringents acts by virtue of reactive congestion. Cold irrigation causes primarily vasomotor constriction and anæmia followed by vasomotor paralysis and increased blood flow to the part. The practical uses of active hyperæmia, though misinterpreted in meaning, are, therefore, not new to us.

Bier, formerly of Bonn, now of Berlin, aims at the same results by creating passive congestion or blood stasis in diseases of the extremities by mechanical compression. He encircles the arm or leg on the proximal side of the diseased area with an elastic bandage. This was spoken of in a fragmentary way by Ambrose Paré in 1875, Nicoladoni and Helferich, but Bier systematized and developed it. It has the advantage over active hyperæmia in that it is painless and transmits its effects to deep-seated tissues. He conceived this idea from the absence on post-mortem of active tuberculous lesions in lungs with hemal stasis due to heart disease; on the other hand, in left-sided stenosis, restricting the blood to the lungs (anæmia), the latter were very prone to be actively tuberculous.

This method has been used by medical men of Europe and America in the most varied kinds of affections, and certainly with superior results. It is economic and simple of application and

has revolutionized surgical therapeutics. Ice, scarifications, the vertical position, sedative and antiphlogistic remedies (antiphlogosis) are thrown to the winds. The same vascular excitation that was supposedly restrained by such means is now a teleologic factor in organic repair. The so-called antiphlogistics, when efficacious, act through hyperæmia after a temporary ischemia. Local sedatives are useful only when nature passes to the point of producing a total arrest of circulation.

The compression is made with an Esmarch bandage, rubber webbing and tubing, piece of suspender, or elastic tourniquet. Two or three turns of the band should overlap, to prevent excessive pressure at one point, and shifted up and down on successive days. The following points may be observed: (1) Apply the bandage as far away from the diseased tissue as possible (arm and thigh in man); (2) It should not be painful or uncomfortable, shown by uneasiness, pawing and biting. A painful bandage is one not properly applied; (3) The superficial veins and lymphatics are compressed, the deep ones and the arteries unmolested. There should be arterial pulsations on the distal side; (4) Œdema or "cold congestion" must be avoided. The leg should remain warm; (5) Where the skin lies against a resisting surface pressure-necrosis must be avoided; (6) Moderate pressure gives the best results; (7) When œdema appears, remove bandage and massage the region; (8) Reapply the bandage after the œdema has subsided. The points of election in the horse are the canons, forearm, elbow, tibial region.

The duration of the application is modified by the tension of the bandage, the regional anatomic disposition, the nature of the affection and the stage of the treatment—two to ten hours and even longer, and shorter periods toward recovery; in the horse, for ten to eighteen hours; in the dog not well determined.

Therapeutic Application.—The Bier hyperæmia was first employed in tubercular arthritis. The patient obtained rapid relief, and joints which called for resection and amputation were made useful.

In erysipelas, parotitis, sinusitis (frontal and antral), coryza, necrosis of facial bones, parulic fistula of the teeth and matoiditis, a rubber band is applied around the neck for twenty out of twenty-four hours or until facial œdema is manifested.

In acute pharyngitis the pain soon subsides and the patient is able to swallow. Maxillary fistula has been so treated without surgical interference. In orchitis a rubber band is placed around the scrotum.

Bierism is most recommended in acute infections and pus formations in the extremities. These include suppurating joints, articular synovial fistula with intense pain, suppuration of tendons and their bursa, bone fistula, white swelling, compound fracture of the phalanges, furunculosis, panaris (felon), osteomyelitis, operative and infected wounds of all kinds. Infections of fingers and hand with a tendency to spread up the arm, like those contracted during bovine parturition, can be aborted, after a proper surgical dressing, by passing a small rubber band around the base of the finger or the forearm.

Suppurative processes of the large articulations, synovials and tendons have given the most brilliant results in comparison with the routine surgical treatment. The bandage is maintained for as many hours—twenty and even twenty-four daily. The pain ceases, pus formation, after a temporary access, subsides, fistulas dry up without curetting and providing for drainage, and the articular functioning is restored. Phlegmons and osteomyelitis have been treated successfully.

Dr. Alfred Gordon has ameliorated and in a few instances cured neuroses like writer's, pianist's and telegrapher's cramp, acroparethesia, erythromelalgia and tic of the neck associated with an impoverished local blood supply.

Much of the success depends upon securing the proper degree of stasis.

Effects of Hyperæmia.—(1) Hyperæmia, active or passive, is an *analgesic,* a local nerve sedative and relieves pain. This is known from experience.

(2) It is *bactericidal.* The blood from the compressed part shows, in vitro, greater bactericidal properties than the normal blood. The theory of phagocytosis of Metchnikoff is well known. Leyden and Lazarus have found in the hyperæmic area an intense leucocytosis and an increase of the bacteriolytic elements of the blood, such as opsonins, lysins, alexins, coagulins, agglutins, etc. According to Dr. J. C. Hollister, it is principally a condition of hyperopsonization. He found that the opsonic index of the blood serum exuding from a diseased area is less than normal—(1) about .5. After hyperæmic stasis begins, the opsonic index rises to approach that of the general circulation.

Bier has also shown by exploratory puncture that abscesses giving pure cultures of staphylococci become sterile in a short time after applying the band.

(3) It opposes itself to generalized *toxæmia* from toxin absorption: (1) The elastic band closes the absorbing channels—veins and lymphatics; (2) Toxins imprisoned in the tissues for some time lose their poisonous effects. If a fatal dose of strychnia be injected into the leg of a guinea pig supporting an Esmarch bandage, the latter can be removed at the end of from one to four hours with impunity (Czylhaz). If, likewise, rabbits are injected with virulent streptococci, only 25 per cent. are fatal; the survivors are not immune. This shows that the toxin not only fails to manifest its immediate effects, but that its properties are destroyed in situ.

Veterinary practice.—When we come to speak of the Bier treatment in veterinary practice, we do not have at our command the data which the physician has. Our information must be collected from the isolated experiences of a few continental veterinarians. In the domestic animals, especially in equines, we find numerous lesions of the extremities which actually cause death or reduce their economic value by impairment of function and blemish, such as arthritis, synovitis, open-joint broken knees, suppuration of tendons and synovials, contusions, subcoronary abscess, diffuse coronary suppuration and deep penetrating street naif.

Röder, of Dresden, declares passive hyperæmia most efficacious in traumatisms of the coronary region and mild phlegmons; also to promote healthy granulations after resection of the lateral cartilages. He found it less useful in large diffuse phlegmons and tendonitis. The ligaturing is maintained six to eight hours at first, and, if pain is not relieved, twelve to eighteen hours.

Parent has obtained excellent results. He employs an elastic band 3 mm. thick, 3 cm. wide and 1 metre long for eighteen hours, renewed after twelve hours. It is applied 10 centimeters above the diseased articulation. He cites: (1) Deep, irregular wound of knee, much pus, enormous swelling, walking on three legs, no appetite, arthritis suspected. Classical treatment failed. Applied ligature. Next day improved, swelling less, eating; daily improvement, and at end of eight day only a small wound which cicatrized rapidly remained. (2) Painful suppurating wound on outside of hock, with fever (39.3°C) and anorexia. In eight days cicatrization was almost complete.

Künnemann employed the elastic ligature of Bier with success several times in diseases of the members in dog. However, he questions its everyday use in veterinary practice on account of the complexity of the technique and the difficulty of regulating the tension.

Mammitis in woman is successfully treated by cupping, another means of inducing passive hyperæmia. This disease, common in diverse forms in milch cattle, often leads to the destruction of one or more quarters. Cups large enough to cover one or two quarters, and even the whole udder, the last giving the best results, are exhausted with a small vacuum pump.

Walter had remarkable success in three cases of parenchymatous mastitis in cows. One was as follows: Udder (left half) swollen, hard, painful, skin stretched, red, hot, anorexia, temperature 40° C. After oiling the skin, the glass was adjusted over both quarters, and, after producing a marked raising of the skin, remained suspended for five minutes; a small quantity of yellow milk was aspirated. This was repeated twice at ten-

minute intervals. On the second day there was more milk, the udder was smaller and softer. The cup was applied for ten minutes at fifteen-minute intervals. The milk increased and was frequently drawn. The third day the appetite had returned and no treatment was necessary. This should also be efficacious in purulent collection of the lacteal sinus.

Sturham speaks also of the good results obtained in two cases of diffuse phlegmon of the leg in the horse caused by contusions.

Schmidt, of the Vienna School, made the most systematic study of the method of Bier in animals. He relates his experience in six cases of trauma of the coronet; seven of suppurative inflammation of the great sesamoid sheath with more or less success; also in inflammation of the perforans and perforatus, street-nail, necrosis of the podophyllous tissue with cartilaginous quittor, without appreciable results.

Two cases of penetrating wound of the phalangeal articulations with synovial discharge were cured in twenty-one and twenty-five days respectively, after routine treatment had failed. A third was a complete failure. The band was applied on alternate days above and below the knee and hock. A few patients would not tolerate the band.

In a purulent synovitis of a hind fetlock joint which had become aggravated after a week of antiseptic treatment, Lemine and Ducrotoy secured cicatrization of the fistula in fifteen days, although the mare was still lame. The band, which temporarily increased the œdema, was maintained for twelve hours daily and gradually reduced to two hours. All symptoms were at once ameliorated.

In a second case of traumatic synovitis of the bursa of the extensor pedis with inflammatory swelling of the knee from a fall, a recovery was effected in four days. A third one of thrombosis of the internal saphena vein with intense lameness, swelling of the leg and pulmonary thrombosis and treated ineffectually for ten days, improved immediately and rapidly on the application of the elastic band around the region of the tibia.

By analogy, we may think of an elastic band placed around the neck like a cribbing strap in coryza, acute pharyngitis, pharyngoplegia, post-pharyngeal and guttural adenitis and suppuration, parotitis and subparotid abscess; also of a band around the arm or forearm against the irremedial osteomyelitis in the St. Bernard and other canine breeds.

After all that has been said about Bierism, what has been gained or what can be divined? In measuring the superior merit of a new agent, our homage to nature's virtues and results from classical remedies must be reckoned with.

We are handicapped by forcible restraint, absence of speech and of intercommunicable intelligence between patient and benefactor. Rubbing, tearing, biting and leg movements are contending factors in regulating the pressure. Thickness of hair and skin and resistance of the parts underneath are factors in avoiding accidents.

That the Bier treatment has given some marvellous results in diseases of man is accepted by physicians who laud it as one of the most renowned discoveries since the days of Lister and Pasteur. In many ailments it has replaced all previous remedies. As veterinarians, we may profit by these facts. In our patients we have many conditions, like arthritis, open-joint, etc., quite unamenable to known remedies, and anything more efficacious is eagerly sought. In some instances, at least, the results have been better than those obtained by the usual means.

The discovery of Bier opens a new and promising line of work and seems destined to have a fair trial, even though, simple as it is, it is a radical departure from older methods. Much depends upon intelligence and experience in its application, the perfection of its details and the proper selection of the clinical material.

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PYÆMIC ARTHRITIS.*

By Dr. John Spencer, Veterinarian, Virginia Agricultural Experiment Station, Blacksburg, Va.

Prior to the more recent bacteriological research the theories advanced regarding pyæmic arthritis in young animals were as numerous as the writers. Observed in all species, it affects particularly colts, calves, lambs and young pigs. Up to the middle of the last century Lecoq reports one-fifth of sucklings destroyed by it. Out of 187 colts that died in the provincial breeding stud, Wurtemberg, during fifteen years, 85 were killed by this disease. While its frequency has diminished with the progress of hygiene of stables and barns, its mortality remains 50 to 90 per cent. of the subjects affected, and most of those that survive remain with persistent chronic swellings of the joints, and continue to be sickly and backward in growth.

Causes.

In 1869, Bollinger first drew attention to the correct etiology of this form of arthritis, when he demonstrated it to be a general infection proceeding from the primary navel infection, principally by the *Streptococcus vulgaris,* which naturally and easily occurred at the time of birth through the fresh navel coming in contact with infected soil or bedding, giving rise to certain pathogenic conditions about the umbilical vessels (Omphalophlebitis), with thrombosis of the portal vein and its branches to the liver, followed by general pyæmia.

Symptoms.

Frequently a chain of general symptoms precede articular manifestation. Their duration, however, are in keeping with the severity or virulence of the infection, while all cases of neg-

* A paper read before the American Veterinary Medical Association, Philadelphia, 1908.

lected pervious urachus (according to our experience) have led to pyæmic arthritis, this condition is not essential to its production. The earlier manifestations are usually those of fever with indifference or entire lack of desire to suck; the little subject is listless and gaunt. In mild cases these symptoms may be overlooked and the first noticeable symptom is that of lameness, which at first simulates traumatism; metastasis, quickly followed by suppuration, being usually sufficient to unveil its true identity to the experienced; the umbilicus is swollen—painful and irritating; the patient lies down most of its time, is feverish and becomes rapidly emaciated, the affected joints are much swollen, hot and painful, the animal being unable to bear weight upon the lame leg; fœtid diarrhœa, followed by constipation, usually occurs; such complications as are usual in pyæmia set in, ophthalmia, pneumonia and nervous disturbances, quickly followed by a fatal termination.

Course.

In foals the course is usually acute, the average duration being from a few days to as many weeks. The prognosis is very unfavorable; estimates of mortality range from 50 to 90 per cent.; the remainder gain health slowly if at all.

Differential Diagnosis.

The metastatic character of this disease is very suggestive of articular rheumatism, but the latter's rarity to attack young animals and far greater rarity to suppuration serves as a guidance, especially when the former is associated with the usual manifestation of umbilical suppuration or pervious urachus; traumatism is also permanent in the injured region.

Post-mortems reveal evidences of general pyæmia. Commencing with the umbilicus, we find suppurative inflammation along its course, with thickening of the umbilical vein; within the inner umbilical ring abscess formation is usually present, with thrombosis of the portal vein; the synovial membranes are thickened and reddened, the synovial fluid increased in quantity and

opaque, which shows the presence of numerous streptococci, upon bacteriological examination. The appearance of the articular cartilage will vary with the duration and degree of attack, when death occurs within two or three days of the onset; very little change may be noticed, but where the attack has been prolonged for weeks, extensive ulceration is usually present frequently extending into the bone. About the affected joints purulent infiltration between the tendons and ligaments is usually extensive; foci of infection may be present in nearly all tissues of the body, especially liver, lungs, kidneys, muscles, and subcutaneous tissue. Evidences of pleurisy, endocarditis, and pericarditis are rarely wanting, with fatty degeneration of important affected organs.

Treatment.

The treatment of pyæmic arthritis is limited to its prevention; the proper disinfection and dressing of the umbilicus at the time it is severed prevents this trouble. It is the only preventive measure known to us (Moore). All authors lay great stress on prophylaxis, but where the disease is comparatively rare, or where colts are foaled in the absence of attendants such measures are likely to be overlooked or applied too late; but where promptly and properly done there is little or no danger. As previously stated, a neglected or persistent urachus will always lead to this form of arthritis; such conditions demand prompt attention; the measures recommended are clamping or ligating the umbilical stump; we have not found this satisfactory. Others again resort to injecting the urachus with such irritant antiseptics as iodine, carbolic acid, and nitrate of silver solutions. These are excellent when carefully used, but are attended with danger if the anatomy of the parts is not accurately known. We have found astringents externally give the best results without risk.

Among the drugs most frequently resorted to when arthritis is apparent are salicylic acid, salicylate of soda, quinine, hyposulphite of soda, arsenic, various iron preparations with laxatives, as oil, salts, calomel, etc., giving surgical and antiseptic

attention to the joints where suppuration occurred, yet these cases were tedious and unsatisfactory, the mortality varying between 50 and 90 per cent. Those which did not die remained sickly and unprofitable.

The spring of 1906 was marked by severe loss among foals in parts of Ontario, one practitioner of our acquaintance having as many as 20 cases on hand at once. By his consent we placed ten 10 c.c. bottles of antistreptococcic serum in his hands for trial, giving him directions for his guidance. Out of five cases treated, four made rapid and complete recoveries, the fifth, as he expressed it, was beyond all hope of recovery before the serum arrived. In the spring of 1907, we had the pleasure of witnessing some very rapid and complete recoveries in typical and severe cases. Experience with it has taught us that large doses (10 c.c.) daily are necessary for a two to three weeks old foal. We have seen no advantage or disadvantage in dividing the quantity, giving 5 c.c. morning and evening. As soon as resolution is established, reduce the dose to half, or even less, throughout the illness. Where the disease is prevalent it is advisable to give 5 to 10 c.c. immuning doses on eighth and fifteenth day, which, with proper care of the umbilicus at birth, will effectually prevent the trouble. Our favorite remedy for persistence of the urachus consists in frequent applications of a saturated solution of alum and borax, to which should be added an amount of carbolic acid equal to 2 per cent. of the whole mixture. When the disease has been well established, before serum treatment is attempted, and extensive suppuration about the joints has taken place, no time should be lost in giving exit to the pus at the most dependent parts of the abscess; the resulting cavity should be carefully flushed out with warm antiseptic solutions. Resulting enlargements may be lessened or dispersed with such absorbents as Tr. Iodine, combined with daily friction. The patient should be kept under the best hygienic conditions; the mother should have equally good attention, with careful but generous diet.

Among cases so treated by us, we will give details of a few representing all degrees in severity of attack:

No. 1. Grade Filly.—On the seventeenth day after birth the owner noticed the foal was lame in left hock, which, upon examination, was found swollen and painful. Suspecting injury, he consulted us as such. Local treatment was prescribed. On the third day following our attention was called to another suspected injury of the right hind fetlock. Our interest was at once aroused sufficiently to visit his farm and make a personal examination, when we recognized a typical case of pyæmic arthritis. The foal was very lame, gaunt, listless, and required aid to rise and suck. Very little outward manifestations of suppuration were evident about the umbilicus, yet the stump was hard and tender. 5 c.c. serum were given daily, which delayed the apparent rapid progress of the disease; the colt's appetite regained somewhat and slight general improvement was noted. On the fifth day following a large amount of pus was evacuated from the hock, which did not involve the synovial membrane; about the same time extensive sloughing occurred about the fetlock extending to the coronet. Two days later an abscess of considerable proportion appeared over the lumbar region, followed by a painful swelling of the left stifle, when we increased the dose to 5 c.c. morning and evening, improvement at once becoming apparent, resolution taking place sufficiently rapidly in the stifle to prevent suppuration. The abscess on the back healed very rapidly; nothing eventful except a rapid recovery took place, the only trace of the disease existing being a slight blemish of the fetlock where sloughing was extensive. The foal has developed as well as its associates which escaped.

Case No. 2. Grade Filly.—Apparently healthy until the third week after birth, when it suddenly and without visible cause developed a painful swelling in one stifle. Our diagnosis being pyæmic arthritis, we at once resorted to serum treatment. Lameness and swelling increased during the delay in procuring serum, but disappeared as suddenly as it came after three days' injection, leaving the colt as thrifty as its mate.

Case No. 3.—Standard bred; dropped two weeks premature. Since its mother had no milk an attempt was made to raise it by hand. During the second week the foal became dull, which symptom was quickly followed by swelling and lameness in both hind fetlocks. Antistrepococcic serum was given in 10 c.c. doses daily, giving apparently good results, all swelling disappearing on fourth day without suppuration. When examined by us a week later we found this case in an emaciated condition, and it required assistance to rise. Both elbows presented large open wounds. Closely following our visit a large, painful swelling appeared in the region of the right elbow, which did not yield to serum treatment, the foal dying two days later. The case bore strong relation to one of a local septic infection contracted from the elbow wound, as it was not provided with bedding other than soiled sawdust, the wounds being in a filthy condition. The case, however, had scarcely a fighting chance for life without the disease.

Case No. 4.—Grade percheron, which was brought to the hospital at the age of six weeks with a history of having discharged pus at left hock for three weeks. Upon examination was found to be lame and unthrifty, the navel still swollen and tender, with pus streaming from a greatly enlarged hock. One ounce influenza serum daily for four doses, together with local antiseptic dressing for the same period overcame all infection. The hock healed and reduced in size rapidly.

Case No. 5. Saddle-bred Colt.—Brought to the hospital at the end of second week after birth. Upon examination was found feverish, dull and constipated, with drawn flanks, navel greatly enlarged and tender. This colt was given one ounce influenza serum on Friday, repeated on Monday. The navel was bathed freely with warm creolin solution. Constitutional symptoms disappeared within the next two days. A small abscess was formed three inches posterior to the navel on the median line. This was opened and flushed out once. This case returned to health promptly.

Case 6. Pure-bred Percheron.—Foaled in a dirty yard and was a weakly colt. Ten days after birth well-marked symptoms of illness were apparent. The foal became constipated and dull, was indifferent about sucking. These symptoms were soon followed by lameness and swelling in left hock, which became so severe as to render the foal unable to rise without assistance. This being a bad case we ventured to double our former dose of influenza serum, which proved exceedingly irritating to the kidneys, and, on the fourth day, we were compelled to reduce the dose to 10 c.c. each morning and evening. Marked improvement soon followed, yet this case did not convalesce completely until we had administered a teaspoonful of nuclein and normal salt solution in equal parts, twice daily by the mouth, in a little water. Enlargement of the hock was reduced quickly by the internal administration of 10 grains Pat. Iodide, twice daily, with Tr. Iodine locally applied.

Case No. 7. Clydesdale Filly.—Strong and well nourished. On the twentieth day after birth was noticed dull and gaunt, with slight stiffness. Two days later was very lame, its left stifle swollen and painful. Influenza serum was given in 30 c.c. dose daily for three days. The colt returned to health in less than a week, making a complete recovery.

Case No. 8. Grade Clydesdale.—Strong when foaled. Ten days after birth urine flowed from navel freely, which persisted for ten days in spite of treatment, at the end of which time well marked lameness set in. When examined by us ten days later we were informed by the owner that every joint in the body had been swollen and that the foal required assistance to rise. Its emaciated condition bespoke the truthfulness of his remarks. One ounce of influenza serum was given on Friday, followed by a similar dose on Monday. In less than a week this case had apparently made a complete recovery. Late reports confirmed this opinion, the foal regaining thriftiness.

Case No. 9. Clydesdale.—Pervious urachus from birth, which persisted nearly a week, at which time the colt became stiff. A

large abscess formed on the left costal region. During the two weeks following, abscesses formed on both front legs, both hocks and on right costal region. Antistreptococcic and influenza serum were alternated daily in 30 c.c. doses from June 27 until July 10, at which time a large, painful swelling appeared on the left hip. The treatment was now changed to influenza serum daily, conjoined with nuclein solution by the mouth. Improvement was apparent on the second day, the foal making a complete recovery.

Case No. 10. Standard-bred Filly.—Developed a painful idiopathic coronitis during the second week after birth. Upon examination was found gaunt and listless with emphalitis and great lameness. The administration of one ounce influenza serum was followed by a complete convalescence in less than a week.

Case No. 11. Clydesdale.—Foaled in a dirty box stall. During second week was noticed dull. When examined three weeks later we found the foal with arched back and unable to rise or to stand unaided. The owner gave us the assurance that every joint in the body had been inflamed, yet no suppuration had occurred. Four bottles of influenza serum, administered in as many days, gave us no results, the colt dying a week later.

Dr. C. J. Brodie, Claremont, Ont., also gave us his cooperation, and gives detail of some nine cases with two deaths, resulting unquestionably from contaminated serum, which had been previously uncorked. Both cases in question were apparently making excellent progress, but died in 18 and 24 hours respectively after the cloudy serum was injected.

Summary.

Pyæmic arthritis is a disease of young animals, due to infection gaining access to the system through the navel wound coming in contact with soil, dirty floors, or soiled bedding; shows itself by suppuration of the navel, followed by general symptoms of illness, with lameness and suppuration of the affected joints, which, if not checked early, terminates in death or else leaves

the patient sickly and unprofitable. Preventive treatment, for which consists in disinfection and protection of the navel at the moment of birth, providing the animal good hygienic quarters the first few days of its life, and where infection has already taken place an early resort to antistreptococcic serum and we believe recovery will be much assisted in a more rapid convalescence by conjunction with nuclein, especially in weakly foals. Large doses of serum should be employed early, and discontinued as soon as resolution is established. The treatment should be coupled with thorough disinfection of parts involved, good, general care, with well-regulated generous diet of the mother.

References—Williams, Fleming, Moore, Friedberger, Frohner, Cadiot and Almy.

A Thoroughly Up-to-Date Meat Inspection Service.—The great meat packing establishments have been held up to the world as examples of the highest development of specialized industry. They are the result of an evolution of years of gradual improvement. The federal meat inspection service, in spite of its organization into a great business almost immediately following the passage of the law, to-day stands side by side with, and is as modern and up-to-date as, the finely organized business that it supervises. The bureau furnishes a sufficient number of inspectors for the work, and they will work as fast as the improved appliances of the establishment permit or its needs demand. The government will not require the proprietor to stop his work to send for the inspector or to wait for him to retire and make an elaborate report, a procedure common in the inspection systems of foreign countries. The American meat inspection is probably the model for the world. Its employees are capable and expert veterinarians, bacteriologists and chemists, and the regulations and organizations are so stringent, and the transfer of inspectors and inspection of inspectors so frequent, that collusion or dishonesty is practically impossible. The consumer of meats which bear the stamp "U. S. Inspected and Passed" may have the very comfortable assurance that he is buying and eating products from healthy animals, prepared under clean and sanitary conditions.—(*Review of Reviews.*)

THE ATTRIBUTES OF A SADDLE HORSE.*

By Dr. F. C. Grenside, New York, N. Y.

The object of the study of the external conformation of the horse is to enable us to determine the merits of an individual for the purpose for which he is required. The conformation desirable differs in a measure in different classes of horses, but there are certain points which any good horse should possess, in order to be up to a reasonably high standard of excellence.

For instance, every good horse must show evidence of the possession of sufficient chest capacity, and well-developed digestive organs, in order to have stamina and ability to maintain good condition and perform a desirable amount of work.

Valuable as a correct knowledge of conformation is, in affording indications of a horse's capabilities and wearing ability, we may form very erroneous conclusions, until we have determined by experience largely, the character of his nervous organization.

We may get a horse so perfect in conformation as to fill the eye of the connoisseur, and still be comparatively worthless when it comes to performance. On the other hand, we may get a specimen of horseflesh with well-marked defects of conformation that is a brilliant performer, which excellence is almost entirely due to his nervous organization, so that we must not over-estimate the indications of conformation, valuable as they are, and we must be particularly careful not to underestimate the value of an animal's nervous organization, in influencing his attractiveness and ability to do things.

We hear and think so much of conformation that we are apt to forget what an important role the nervous system plays in contributing to qualities that make horses valuable.

It is well for us to endeavor to realize how much influence the nervous organization has in contributing to speed, action,

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style, high-stepping, carriage, power, courage and stamina. When this vitalizing, power-giving, controlling element of nerve force is adequately supplied to a horse's physical mechanism, constructed so as to prevent friction, to conserve energy and promote mechanical advantage in movement and balance, then we have an individual bordering on perfection, providing he has sufficient and good quality of material, in his various component parts to confer wearing ability.

In studying a horse's conformation, and in endeavoring to form an opinion as to his power, stamina and wearing ability, we observe his tout ensemble before going into details as to his points. Other things being equal, the long, low, deep horse has the most power, stamina and constitutional vigor, and can to the greatest degree economize force, and stand wear and tear.

Judging from the character of the horses we frequently see used for riding purposes in this State, we might be led to form the conclusion that there are no essential differences between a harness horse and a saddle horse.

Certainly one can ride any sort of a horse, even a draught horse, and one can drive any kind of a horse, even a race horse, but it does not follow that they are the best for these respective purposes. Individual tastes differ very much as to the qualifications demanded in a horse for riding purposes. Some equestrians, and their number seems somewhat on the increase, care practically nothing for any gait but the trot. As long as a horse can shuffle along in some sort of a way in the walk, that gait will pass, providing he can trot fast. Others do not care so much for speed in the trot, but want that gait performed with decision and force, which means a pretty fair amount of action at both ends. To the latter the canter is of very secondary importance, though they may attach some to the walking gait.

There are others that consider the trot of minor importance, and particularly demand a good smooth canter and a good walk. The majority, however, of riders of experience that have given the subject much thought desire to have all three gaits as good

as possible. Change of gait in riding is conducive to the comfort of the rider, and the variety gives additional enjoyment to a ride. The horse as well as the rider derives relief from a change of gait.

If a vote were taken among riding men (those that ride on the road and in the park) as to the values to be assigned to the three gaits, on a scale of one hundred points, the majority would be in favor of giving at least forty to the trot with thirty each to the walk and canter. The trot is the gait at which the rider gets most exercise, and covers ground well at the same time. It is usually less tiring to a horse than the canter, and less injurious to the feet and legs, particularly if the ground is hard.

Assuming that the walk, trot and canter are the desirable gaits for a saddle horse, let us endeavor to determine the attributes essential in an individual which contribute to the proper execution of these, as well as the other attributes necessary in making up a good saddle horse.

One of the greatest delights in riding a horse is elasticity of movement, which confers easy paces. This is in a large measure due to the high nervous organization of the easy mover. There cannot be any question but what the thoroughbred possesses this in its very highest state of perfection. The question then would be naturally asked, "Why is he then not the most perfect saddle horse?" Some people think he is, and don't want to ride anything else, and many men with this taste are very good riders. The average rider, however, will not say so, for he demands level-headedness, reliability and good manners, and he is willing to concede some loss of elasticity of movement for greater tractibility. Great perfection is an attribute apt to be associated with serious defects so that we find most thoroughbreds excitable and highstrung and some of them obstinate and intractable. They have as a rule sensitive mouths, and are apt to be very fussy with them, quick in their movements, and unless a rider is of lightish weight, and has good balance and hands, he is apt to experience a great sense of insecurity on their backs.

Many of them carry low heads, have little action or speed at the trot, and are apt to stumble. Still, with all these tendencies to defects he is the horse to aim at, for he undoubtedly gives two things without which no saddle horse can be considered very high class, viz: elasticity of movement and quality. Quality appeals even to the casual observer by its attractiveness, but with two-fold force to the horseman, as he knows that it also means toughness, ability to stand "wear and tear" and wiriness. Occasionally we find a thoroughbred, however, with fair speed at the trot, sufficient action, well-carried head, tractability and surefootedness, then we have a gem; but usually in order to get these latter qualities, some other blood that has been tempered with cold blood has to be infused.

The saddle horse in order to be well balanced should have his head up, nose in, neck arched, and his legs well under him. His head should be of moderate size, clean-cut, or in other words, show quality, with well-carried ears. It is particularly important that he should be able to bend his neck at the anterior part, otherwise he cannot flex his head upon it, be well balanced and have a steady, responsive mouth. A horse may have the unsightly ewe or bulging neck at the inferior part, but still have a good carriage, providing its anterior part is well formed. Length of neck adds very much to the attractiveness of a horse, and contributes largely to the long rein the horseman prizes so much. It also gives flexibility to that organ, and is apt to be associated with a responsive mouth. The neck should show muscularity, but be clean-cut with an absence of beefiness.

The withers and shoulders are points of very considerable importance, and perhaps constitute the most essential feature in differentiating the conformation of a saddle and a harness horse. It is no reflection upon a harness horse to say he has riding shoulders, but it is an aspersion upon a riding horse to say he has harness shoulders. The make-up of the withers and shoulders so modify each other's form that it is difficult to study them separately. It is of importance in a saddle horse to have the

withers of moderate prominence and clean-cut, for if they are flat, round or beefy it is a difficult matter to keep the saddle in position. It is not easy to keep the saddle from rolling on round withers with a man's saddle, and it is almost impossible in a lady's horse. Such withers necessitate tight girthing, making it very uncomfortable for a horse and inducing fatigue, while girth sores and seriously bruised withers are apt to result. The withers, however, can be too high, and if sparsely covered with muscle as they usually are, are also very liable to bruising. Thin, high withers are usually indicative of delicacy of constitution and defective muscular development. Some low-withered horses have easy paces, but the majority of round, beefy-withered ones lack the smooth, easy play of the shoulders upon the thorax, and are apt to roll. In considering the withers with relation to the highest point of the croup, they should be at least as high, otherwise, the saddle and weight of the rider gravitates forward, throwing too much weight upon the anterior extremities. This is accentuated in horses with a dip just behind the shoulders.

The shoulders should have a pretty fair amount of length and obliquity, in order to give range of movement in promoting a reasonable length of stride. Length and obliquity of shoulder also have a very important effect in dispersing concussion, and consequently in enabling the forelegs to stand "wear and tear." Straight-shouldered horses in doing saddle work are very apt to become unsound in the fore extremities. Fully eight-tenths of the lameness occurring in saddle horses is in the forelegs.

Great length and obliquity of shoulder, however, is apt to result in a lack of action, and a fair amount of action of the right sort adds to the attractiveness, and usually the sure-footedness of a horse.

For reasons already given, it is particularly important that the forelegs of a horse should show strength and wearing ability, and be well poised. The back is very frequently referred to as of first importance in a riding horse, and shortness of this point emphasized as being particularly desirable. It no doubt in-

creases the mechanical strength of a horse's back, particularly if associated with well-sprung ribs and muscularity, but in order to contribute to elasticity of movement moderate length is necessary. The short-backed horse must have long fore and hind quarters, otherwise he is a poor specimen, either to ride or to look at as an object lesson.

The roach-backed horse is usually a rough-gaited one, while the slack-loined one lacks strength. The full and easy flexion of the stifles and hocks in the trot adds much to the comfort of the rider, particularly in a woman's mount.

TRANSPLANTED A DOG'S LEG.—Some of the wonders of experimental surgery accomplished at the Rockefeller Institute for Medical Research in this city were made public the other day at the opening session in Philadelphia of the American Philosophical Society.

Dr. Alexis Carrel described the grafting of one dog's leg on another dog's body. The leg was taken from a dead dog and grafted on a fox terrier. In three weeks' time the wound healed and the dog was able to use the new leg. He had perfect control of it.

Cats' kidneys have been transplanted to other cats, even after the organs have been in cold storage sixty days.

Human arteries and jugular veins have been interchanged and the patients have not been able to tell the difference.

It is entirely possible, Dr. Carrel thinks, to apply some of these methods to the relief of suffering humanity. This is the end toward which the Rockefeller Institute is working. The chief difficulty will be to get healthy organs to transplant.

It was suggested by Dr. W. W. Keen that when a healthy man dies his kidneys may be kept in cold storage until it is possible to operate upon some one suffering from an incurable kidney disease. What has been done with the kidneys, Dr. Keen thinks, can also be done with other human organs.

Already a knee joint from the leg of a dead man has been used to replace an injured joint in a living person.—(*N. Y. Sun.*)

THE ARMY VETERINARIAN AND OTHERS.

By Gerald E. Griffin, D. V. S., Veterinarian, Third Field Artillery, U. S. Army.

Read before the 45th Annual Meeting of the American Veterinary Medical Association, Philadelphia, 1908.

Gentlemen of the American Veterinary Association: The subject of the Army veterinary service has, to my personal knowledge, been before this association for twenty years until, I presume, the older members are heartily tired of it. But, gentlemen, if you are weary of listening to the barren reports of your committee each year, how weary must we of the Army be, waiting and hoping for a quarter of a century. Hoping for much, only to be met with continual disappointment.

I am here with Veterinarian Foster, of the Cavalry, as a representative of our efficient and invincible Army. I do not believe the authorities at Washington thought the Army needed representation here, nor does it, but I do hope they believed the Army veterinary service needed representation, and therefore I take this opportunity of placing our needs before you, trusting that your influence may be exerted in behalf of this service.

This association has grown so fast and increased in membership so rapidly that it resembles a child suddenly developed into a healthy giant, incapable of determining its own strength, and I am of the opinion, as are hundreds of others of this association, that one of the best ways in which to test this strength is through the War Department and Congress in an effort to establish a decent, competent and effective veterinary service in our splendid Army that is organized in every branch except this.

Before proceeding further, a brief outline of Army veterinary history may be of interest to the younger members of this association.

In the seventies, and before, any able-bodied man could become a veterinarian in the U. S. Army, a vacancy existing and he making application to the commanding officer of the particular regiment.

These vacancies were frequently filled by stablemen of the service and by nondescript civilians, all without examination as to professional knowledge. This condition maintained until about 1880 when the War Department issued an order to the effect that thereafter applicants for the position of veterinary surgeon in the Army should be graduates of a veterinary college. At that time and until 1899 the entire veterinary work of the Army was attended to by twelve veterinary surgeons, ten with the pay of $75 per month, and two with the pay of $100 per month, all having the rank—yes, rank—and allowances of a sergeant-major; with this exception as to allowances. They were not furnished with either rations or clothing.

This condition continued until 1898 when a committee of this association, known to us in the Army as the Huidekooper Committee, was instrumental in persuading Congress to pass a bill creating a decent veterinary corps, but by some means that none of us ever clearly understood, and called by your committee "a fiction of procedure," the bill was killed, although it was "awaiting only the signature of the President."

The discussion in Congress on this bill opened the eyes of the veterinarians of the United States to the prejudice existing against their profession. This prejudice has almost disappeared, due, undoubtedly, to the work of this association and to that of the Bureau of Animal Industry; although I believe it still exists in the minds of superficial and narrow-gauged individuals who instinctively connect the word veterinarian with that of "horse doctor."

I may remark in passing that the time of which I have just spoken was a trying one for us in the Army. The flaying received from several members of Congress, although undeserved and groundless to say the least, made me for one feel as if I was associated with a gang of criminals in belonging to a profession into which to gain admission I had to give three years of preliminary study and to expend upwards of two thousand hard-earned dollars.

As a substitute for this bill the War Department, realizing that the veterinary profession was of some importance, had a bill introduced and passed providing that thereafter all veterinary candidates for appointment in the Army should be graduates of a recognized veterinary college and that they should pass such examination as the Secretary of War might direct. This bill made certain provisions for those in the service, but insisted on the examination. On passing this examination successful candidates were appointed veterinarians, first class, with the pay and allowances of a second Lieutenant of Cavalry. The failures, in the service, were provided for by an appointment as veterinarian of the second class, with the pay of $75 per month and all of the allowances of a Sergeant-Major. Nearly all of us were in field at the time in Cuba, Porto Rico and the Philippines, away from books, and when the order came, as high as 50 per cent. failed on the mental examination, which was a severe one and continued for eight days of six hours a day. The vacancies created were slowly filled by successful applicants from civil practice, and from that time we began to get good men, gentlemen with the interest of the service and the profession at heart and possessing dignity, self-esteem and ambition. After a time Congress abolished the position of veterinarian, second class. Promoted those in that class and called all veterinarians. This is the status at the present.

The law says a Cavalry or an Artillery Regiment shall consist of certain members and among them it says "two veterinarians;" nevertheless, we are not considered as belonging to the Army, nor have we any military place in it that I know of. It is proper to suppose that if a regiment of Cavalry or Artillery is part of the Army of the United States and that a veterinarian is part of that regiment he certainly is a member of or is part of the United States Army, be he enlisted man, officer or missing link; such is not the case, for it has been decided that a veterinarian shall not wear the letters U. S. on his uniform, as such a mark of honor and distinction is reserved for commissioned officers and enlisted men of the U. S. Army alone.

This decision places us in an awkward position, especially when serving with militia or with troops of other armies and in time of war we would, if captured, have an uncomfortable half hour trying to explain things.

The omission of the letters U. S. may appear to be a small thing to you gentlemen, to us in the Army it is one of the proverbial straws, and when you come to consider it it will, I am sure, indicate clearly the position occupied by your colleagues in the service.

Some years ago a Secretary of War in a letter to the military committee of the Senate remarked as follows: "If the country is willing to pay for more 'Colonels, Majors and Captains' (referring to a veterinary bill then before this committee) the money should be expended upon the fighting force of the Army to furnish promotion to the hundreds of gallant fellows who have been enduring hardship and facing death on the battlefield." I have often wondered if the Secretary of War thought the veterinarians remained at home when hardships and death had to be faced. He certainly knew that our place is on that same battlefield facing death and hardships with our outfits at the front, where we are not protected by the Geneva Convention, where when not occupied professionally, the rifle and revolver are the instruments in hand and that the national flag and the regimental standard mean as much to us as it does to any Colonel, Major or Captain.

No provision that I know of is made for the safekeeping of the Army veterinarian from hardship or death on the field, and I also know that many of our veterinary comrades have been summoned to their last muster by the hands of the enemy of our country and by the gaunt specter of yellow fever while serving in the tropics, while still others have had their health ruined by service in our island possessions.

Many are unfitted for service by reason of old age and length of service and disability, but up to the present no provision has been made for taking care of them and filling their places with young and virile blood. The privilege of retirement, which is the right of the meanest soldier, is denied to the veterinarian.

I do not believe the Secretary of War intended to convey the impression that the veterinarians of the Army were not gallant fellows for gentlemen gallantry and bravery are cheap commodies in our service and among our people and after a service of twenty-five years in this Army I can truthfully say I have never seen or heard of a coward.

The Army of the United States, with its sixty-five thousand gallant fellows, would storm hades itself if they were so ordered and could locate it, and I can inform you that the rear rank would not be the place in which to look for its forty-two veterinarians, unless some of them were ordered to the rear for professional duty; bowed down as some of them are by weight of years and active service and disease.

We have been accused of not knowing what we want, of not agreeing together, and of other sins. Gentlemen, we do not disagree beyond an honest difference of opinion fairly expressed. We know what the service needs and what it is bound to have sooner or later—a properly organized veterinary service, competent and capable, with an experienced veterinarian at its head to properly direct and guide, and we know also that if Congress made each and every one of us a Brigadier-General to-morrow without this organization which we know is necessary, the service and the country would not benefit one iota.

As we now stand we are as a body incompetent and incapable of rendering the efficient service of which we are capable. In time of war all of us, able to do so, would go to the front with our regiments, leaving the important work of examination of remounts and the veterinary work and sanitation of remount, reserve and recuperation corrals as well as veterinary base hospitals, not in the hands of such men as compose this association, men of professional standing, education, family, paying practice and property interests who would not leave their homes until the necessities of the country were imperative, but in the hands of veterinary failures and green youngsters fresh from the country districts and from colleges not recognized by this association, untrained, unsoldierly and undisciplined who would only

be too glad to give their questionable services for a compensation of $100 per month flat and no allowances or status; while at their head, if they had one, would probably be one of themselves whose professional mind and executive ability would, ten to one, be exercised in compounding specifics for bots, "heaves" and glanders.

We are all of us in favor of the present bill, now before Congress and awaiting action in the house. It having passed the Senate. But, gentlemen, we regret that this bill makes no provision for our comrades in the service suffering from disease and disability contracted in the line of duty.

We do not as men and brothers desire to gain advancement for our profession or ourselves by stepping over the diseased bodies of these comrades who were ever willing and ready to sacrifice their lives and health in the service of that flag which has never known defeat. We, as men and veterinarians, trust that the War Department and Congress will look at the matter from this point of view and attach an amendment covering this oversight to this otherwise satisfactory bill.

And now a few words as to others.

I have in mind the veterinary service of the Quartermaster's Department, U. S. Army. A service composed of sure-enough civilian veterinarians whose compensation is fixed by law at $100 per month and no allowance whatever.

They serve where they may be sent. Heretofore it was only necessary for an applicant for a position in this Department to lead the authorities to believe that he was a veterinary graduate when he was immediately appointed, for you must remember that a position as veterinarian at $100 per month flat, and absolutely no status would not appeal to graduates of New York, Cornell, Pennsylvania and colleges of that class, so it followed that this Department had to do its recruiting among the inferior colleges and places and consequently appointed what it could get, which accounted for the many resignations and vacancies.

These green chaps were placed upon their own professional responsibility and as their veterinary training, education and in-

telligence, in a great many instances, were limited, they did not do much to illuminate the veterinary profession in the Army or out of it.

This condition of affairs is being remedied by the present Quartermaster-General—General Aleshire—an eminent authority on the Army horse, who now compels veterinary candidates for appointment in his Department to take a not very rigid civil service examination. I have been given to understand that very few men are willing to take this examination, they probably believing that a veterinarian's position paying but $100 per month and carrying with it no allowances and a status not superior to that of a teamster is not worthy of being sought after.

There are good men in the veterinary service of the Quartermaster's Department—first-class men—but having examined—no, talked—with a number of applicants for positions in this Department and having served as Supervising Veterinarian, Quartermaster's Department, Army of Cuban Pacification, for two years I can say that most of these men, and I have known many, are no better than they ought to be.

The Quartermaster-General is powerless to improve the pay or the status of these men.

It looks to me now that no distinction should be made between the veterinarians of the Quartermaster's Department and those of the Army, but that all should be on the same footing, for I am sure that if the men in the service in 1898 were not deemed good enough to remain in that service without an examination there are those in the Quartermaster's Department to whom the same law should apply.

The old Army veterinary service previous to 1898 was certainly superior in every respect to what the veterinary service of the Quartermaster's Depatment is at the present moment.

I thank you for your attention and appreciation, but before I take my seat permit me to say that the few remarks I have made have not been made in any spirit of complaint, faultfinding or criticism.

Things move slowly in the service. It is harder to change a custom there than it is to have an order revoked, which, of course, accounts for the slow progress made by us.

The War Department has many matters of importance on its hands probably more pressing than a veterinary service, but I know it is favorably disposed toward us.

I will say here that all Army officers, except two, with whom I have come in contact are in favor of increasing, advancing and organizing the veterinary service of the U. S. Army.

(In reply to a question:)

As to the feeling among the members of the profession serving in the Army. They feel that they are neither fish, flesh or good red herring. They are in the Army and yet do not belong to it, which feeling is, as a matter of course, not conducive to good results professionally or to good fellowship socially.

Yes. I think the War Department is wrong in not consulting with us as to the needs of the service. I do not know who gets up the veterinary bills, nor what is being done to advance them. We are not permitted to have a hand in this.

Personally, I am trying to do my whole duty according to my lights, and what I have said here to-day I, as a soldier—for I am one—and an Army veterinarian, consider part of my duty to the service.

Unhygienic Roosting.—The Countryman—Down here, sir, we make it a rule to go to bed with the chickens.

The Britisher—Er—don't you find it beastly unhealthy?—(*Puck.*)

Students of the Veterinary College, Toronto, conducted extensive hazing operations this year on the freshman class, so extensive in fact that sufficient freshmen could not be found, and civilians who happened to be passing the building at the time were pressed into service and several initiated in the most approved style. The police on duty around the college were forced to send in a riot call to headquarters and a squad of constables was required to club the vets into submission.—(*Farmer's Advocate, Winnipeg, Manitoba.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

THE USE OF OXYGEN GAS ON RACE HORSES.

By L. C. Marshall, V. M. D., Rome, Pa.

In the early spring of 1908 the writer had, in training a fast trotting mare. In the beginning or training she showed great dyspnœa when driven a mile in 2.30 or faster. The labored breathing would last from thirty to forty minutes after a workout. The time between racing heats is twenty-five minutes and in order that a horse may give a good account of himself it is necessary that he should be cooled out as soon as possible. The groom usually follows the same routine of caring for a horse between heats. While he may not be schooled in the principles of physiology, he has learned by experience certain things that are important. The animal should stand with his head to the open door or window so he can get all the pure air possible. The fifth of the volume of atmospheric air is oxygen and it is known that this element is consumed rapidly during hard or rapid work. The writer reasoned that instead of giving alcoholic drenches, as is too often the case under such conditions, which would consume oxygen still faster, that it might be advisable to supply still more oxygen than normal.

The mare was given a fast workout and immediately oxygen gas was administered from a tank that had been provided for the occasion. The results were most gratifying. Normal breathing was re-established much sooner than when it had not been used. The same experiment was repeated in a few days and the results were equally as satisfactory.

She gradually got in better condition, so it was not necessary to resort to the oxygen treatment. She raced well the balance of the season with no more trouble.

The writer is not aware that oxygen gas has been used before for the above purpose. Since experimenting with it there have appeared a few references in the daily papers to its use on athletes.

It was used on some of the runners in the Marathon races during the past summer.

Some experiments were conducted at Huntington Bay, Long Island, during the summer, under the direction of Dr. E. E. Smith, professor of physiology at Fordham College. Oxygen gas was administered to one of the athletes just before swimming 100 yards on time. He made the distance seven seconds faster than he could under similar conditions without having taken the oxygen gas.

Another swimmer took three inhalations of oxygen gas and swam under water one minute and thirty-six seconds and came from the test with apparently no exhaustion.

Miss Eline Golding, the champion woman swimmer, swam a quarter of a mile on a triangular course in eight minutes and four and two-fifths seconds. Two minutes before she started to make this record she took three inhalations of oxygen gas and remarked after leaving the water that it took much less effort than under normal conditions.

After reading of the above tests I decided to try it just before a heat on a horse that had band wind. For this experiment a horse was selected that could go very fast for five-eighths of a mile but was unable to finish the heat. He was given a fast heat under normal conditions and at the five-eighths of a mile was blowing so hard that it was not considered safe to force him further. He was then walked till normal respirations were re-established, which took thirty minutes. He was then given oxygen gas and started immediately in another heat. He was exhausted at the five-eighths as in the previous effort. Oxygen gas was given at once and normal respirations were re-established decidedly sooner than in the previous heat, when oxygen was not given.

Whether oxygen gas administered to a horse just before a race will increase his endurance or not I am not prepared to say, but I am convinced that if given, after a heat, to a horse that is exhausted it will be of great benefit.

SHOULDER JOINTS HIGHER THAN TOP OF NECK.

The accompanying illustration represents a remarkable case reported to the REVIEW by Dr. E. E. Bittles, veterinarian, New Castle, Pa. The subject was an 18-months-old colt that appeared to be in perfect health and no sign of any injury, but

the body settled down between the scapulas until the shoulder joints were two inches higher than the top of the neck when the colt was grazing, which all came on in a very few days.

CEREBRO-SPINAL MENINGITIS OR FORAGE POISONING?

By A. T. FERGUSON, D. V. S., Cleburne, Texas.

I have just had three cases of what I would term forage poisoning, all three occurring on the same farm.

The first being that of a gelding, about eleven years old and weighing about 1,000 pounds. The second was a sorrel gelding,

about seven years old and about 1,100 pounds weight. The third was a bay mare fourteen years' old, about 1,000 pounds. All of these animals died with the same symptoms, with little or slight variations.

The first animal the day before was in all respects in good health. The following morning the owner found it did not eat; it had a staggering gate; became partly blind; vertigo. These symptoms became more severe until the animal went down; there is an inability to swallow; pain is absent; the temperature below normal; pulse normal and respiration sporadic, at times quick and catching. The animal remained in a state of coma for several hours and finally died without pain or any outward symptoms to indicate that there was any suffering. In this case treatment seemed useless.

The second case: The animal was at work and at 6 o'clock was taken out of the harness. He immediately became very violent and unmanageable; ran away and was stricken with vertigo; broke through every fence he came in contact with. He was found next morning two miles away in a complete state of stupor, brought home with great difficulty and terribly cut up. He was given an hyperdermic of 1 grain of arecoline. The animal was extremely vicious and unable to swallow. He remained quiet for several hours, when delirium developed, with inability to stand; with rigidity of the spinal muscles. He went down and remained in a state of coma for 6 hours, evidently painless, with all other symptoms similar to the first case; finally died without a struggle.

The third case: That of a mare fourteen years, was being treated for intestinal worms, but before this was completed, the animal showed signs of vertigo, with staggering gait, refused its feed, and was unable to swallow. There seemed to be an inability to hold up its head. After staggering around in an aimless manner it went down; went like the other two into a coma or deep sleep, with lack of all sensation. Pulse normal, respiration unchanged, temperature below normal; a weakness is observed in the tail. Stimulants were given but with little results; the animal remained four hours in an apparent sleep and finally died painless and without a struggle.

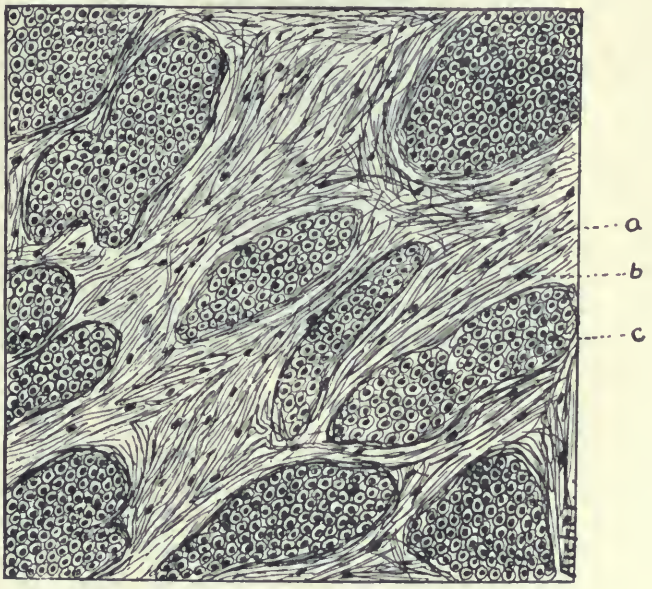
On questioning the owner, I found he had been feeding very liberally of smutted corn. Much of it was moldy and decayed. I ordered that the feed be entirely changed for one month, and that a general house-cleaning be undertaken at once.

In all three cases it was impossible to administer medicine by the mouth owing to the partial inability to swallow and the impairment of eyesight. What treatment was given was entirely hyperdermic, and with great risk to those in attendance, until the animal had become practically insensible. In every case there was lack of pain. Vertigo, coma, low temperature, normal pulse in first stage, afterward became rapid and irregular, was very manifest in all the cases.

CARCINOMA OF THE PENIS.

By B. F. KAUPP, D. V. S. Pathologist, Veterinary Department, Colorado Agricultural College.

On July 10, 1908, a black gelding, 8 years old, belonging to the college farm, was presented by the farm foreman to the clinic of the veterinary department.



X ⅔ X 1.
a. Nuclei.
b. Connective Tissue.
c. Epithelial Cells.

An examination of the penis revealed the fact that there was a new growth involving three inches of the free extremity. An

operation was decided upon and the growth removed including apparent healthy tissue. A microscopic examination of this part showed a scirrhous carcinoma. An abundance of fibrous stroma and nested epithelial cells. The horse made an apparent recovery; that is, the owner thought he had recovered. On October 15th was stopped by the college farm foreman who complained that the horse had a bloody discharge, not abundant but sufficient to

Photographed by Stewart.

cause a soiling of the hind legs. There was also some odor present. As the horse was of broncho type and an examination impossible unless he was restrained, the foreman was advised to send him over to the clinic where he could be put on the table and a thorough examination made. This was done, and it was found that a new growth about the size of a hen egg had formed upon the stump of the penis. This was removed and sent to the laboratory for diagnosis. The new formation had less fibrous stroma than the original tumor. The accompanying photograph

was taken from a sectioned surface of the second tumor. The drawing was made from the microscopic study and shows the fibrous stroma, connective tissue cells and the meshes or spaces filled with the large nucleated epithelial cells. The farm foreman was advised of the inability or impossibility of curing cancer. He then decided to dispose of it for dissecting material.

CHRONIC THORACIC CHOKER.

By F. C. Meckstroth, M. D. C., St. Marys, Ohio

The following subject was a 10-year-old gelding which at different times this summer choked on grass, of which he was relieved every time by a stomach tube and pump. Later this fall his condition became so aggravated that he could hardly eat a feed without getting choked. He rapidly became emaciated and weakened to such an extent that he could not be worked. I informed the owner that treatment would be useless, so he decided to have the horse destroyed. A post-mortem was held, but we did not find anything wrong with the œsophagus till we opened the thoracic cavity, where we found a pouch in the œsophagus about 8 inches in circumference and about 5 inches long, full of finely comminuted food. This pouch was about 5 inches from the cardiac opening of stomach. About 2 feet superior of this pouch the œsophagus was filled with the same kind of material. The œsophagus seemed to be in a partial state of paralysis for it was enormously dilated all along its course. The wall of pouch was slightly thickened, but the mucous membrane was normal, it having clinging to it a few immature bots. The reason why the animal would so easily choke will be evident if we study the physiology of the muscular walls of the œsophagus, and why food should accummulate in this miniature stomach as it may be termed. I considered it an interesting case, worthy of publication, to assist others in making a diagnosis in cases of chronic chokers.

A GOOD INTESTINAL ASTRINGENT.

By J. J. Farrell, M. D. C., Montpelier, Vt.

For the benefit of practitioners who have experienced difficulty in securing a good intestinal astringent, I would like to relate my experience with gallogen.

The chief advantage of this drug is its ability to pass through the stomach unaltered, thus enabling it to reach the affected parts and there produce its effects.

For the larger animals one-third of an ounce administered three times a day for about a week will check a very severe diarrhœa. In chronic cases, should a tendency to looseness reappear, it may be necessary to repeat the treatment. In my experience, further treatment than this have been unnecessary.

In dogs from 4-15 grains three times a day gives most satisfactory results. Where the diarrhœa is suspected to be of specific origin it is well to combine the gallogen with an intestinal antiseptic, such as Xeriform, of which 5 grains is the dose for a medium-sized dog.

The administration of gallogen is much facilitated by the fact of its being odorless and tasteless. For horses and cows where there is no anorexia it can be made up in powders and mixed with the feed. In cases where there is loss of appetite it is best given in capsules. In the treatment of dogs it can be given in capsules or concealed in a small piece of meat.

Such satisfactory results have I obtained with this drug that I feel it my duty to make them known. It is very gratifying to state that with gallogen cures have been effected in cases where with ordinary astringents relief was obtained only temporarily or not at all.

Cornell University has bought within the past year for the benefit of the College of Agriculture and the Veterinary College, approximately 500 acres of ground contiguous to its other holdings.

Michigan's Practice Act Sustained by the Supreme Court.—Lansing, Nov. 4—Practicing veterinarians who failed to register under the law of 1907 before January 1, 1908, cannot now be registered and continue in practice under a decision of the Supreme Court in the case of Leo W. Kerbs against the State Veterinary Board. The law was passed in June, 1907, and provided that persons who had been engaged in the practice of veterinary science for five years must register with the State Veterinary Board before January 1, 1908, or be prohibited from practicing in this state. This provision of law the court holds to be mandatory.

ARMY VETERINARY DEPARTMENT.

VETERINARY FIELD HOSPITALS AUTHORIZED.

The *Army and Navy Register,* of October 31st, contains the following interesting news for Army veterinarians:

"The recommendation has been made to the War Department that steps be taken to equip the military force in the field with such materials as will permit the maintenance of a veterinary field hospital. Such an institution has been in existence at Camp D. S. Stanley, Tex., and the results achieved led to the suggestion that such hospitals be adapted in a permanent way for all encampments. The question has been discussed in the General Staff of the War Department with the result that it is considered that paragraph 92 of the Army Regulations contains sufficient authority for the establishment of veterinary field hospitals and no further regulations are necessary. In other words, whenever a veterinary field hospital is needed the authority for, and means of, its maintenance exist in full measure."

This is good and curious news. Army veterinarians know that they have tried in vain for the past twenty years to have such veterinary field hospitals established with marching columns and at the camps during manœuvres. The paragraph of the Army Regulations, referred to above, has several times been taken as a basis for recommendation of their establishment, but without success. A report of the results attained at the veterinary field hospital at Loon Springs, Tex., was ordered and forwarded, and Dr. Foster, 12th Cavalry, hearing of it, made a critical report of the hampered veterinary service at this summer's manœuvres at Chicamauga Park, where such hospital was not in operation. This seems to have turned the tide.

The above decision of the General Staff, apparently easily arrived at, means another step forward. It means good progress when taken in conjunction with the several substantial veterinary hospital buildings now finished or under construction at our new and modern mounted posts.

A "Veterinary Field Hospital, U. S. Army," being an established fact, a brief description will be given in the next issue of the REVIEW, outlining the necessary steps to be taken for its establishment when needed, to enable veterinarions concerned to make use of the provision cited before the manœuvres of next year.

THE OFFICIAL ARMY VETERINARY BILL AND OTHER BILLS.

Just as if to remind us of the days gone by when there were never less than two veterinary bills in circulation asking for support, with dire results chronicled or forgotten, so we are now, at the last moment before reconvening of Congress, besieged by well-meaning and courageous friends to abandon the official Army Veterinary Bill in Congress and to substitute new ones for it.

One of the new bills suggested is by Dr. Nockolds and the other by Dr. Fraser. The first comprises a complete veterinary organization, well thought out and surely operative with some minor changes. Its reading makes one long for its enactment, but on second thought reminds one of the story of the fox and the sour grapes. It will be a valuable draft to go by when the time comes to prepare a veterinary organization scheme. The other bill again recommends a commission for 2nd lieutenant, and after five years of service that of 1st lieutenant. It is made to suit the very young men in the service, but does not consider the very old men, nor does it concern itself with any working scheme that will benefit the Army generally.

Now, a word of warning and encouragement. The facts before us, from which to draw conclusions, seem to be these: The official bill before Congress was made by the General Staff, approved by the Chief of Staff and by the Secretary of War, and is now half passed. Its faults have been pointed out time and again, but out of respect and in good taste and foresight, we should at least not question the sincerity of its purpose. *If this bill passes* with the amendment asked for by the American Veterinary Medical Association, it will give us some temporary relief as far as most urgent individual benefit is concerned, as

it practically confers a commission upon us. Its drawback is that we know beforehand that it cannot "improve the efficiency of the veterinary service," because it lacks provisions for co-operative veterinary work and for professional supervision. If *this bill fails to pass and is out of the way*, then we are free to start anew and try again and try better. No *new* veterinary bill has any claim before the present Congress because there is one already before it not yet entirely passed, but neither is it dead. Moreover, there is no time to carefully prepare and forward any kind of new measure. Single-handed attempts, as of yore, will only tend to confuse our friends and give a powerful weapon to our adversaries of which—we trust—there are perhaps less than in 1901, but plenty enough left to defeat us for another seven years.

Conclusion: "*Allow the bill to pass if it can; help it; if it is going to die, kill it dead*, to end suffering and agony," as provided for in Army Regulations, and in order to give us a new and clear right of way. O. S.

Glanders Kills a Physician.—Chicago, Nov. 19—Death from glanders, rare in a human being, overtook Dr. Thomas M. Wilson, of Atwood, Ontario, at the Presbyterian Hospital in this city to-day. Dr. Wilson absorbed the germ of the disease while conducting experiments at Rushwell College.

Milk.—Dr. John S. Fulton, of Washington, the secretary of the International Congress of Tuberculosis, once told this milk story:

"He said that a city man took a house in the country for the summer. He sought out a farmer at once, looked over the cows on the farm, found them to his liking, and said:

"'My servant will come to you every morning for a quart of milk.'

"'All right,' said the farmer; 'it will be 8 cents.'

"'But it must be pure milk, mind,' said the city man; 'absolutely pure.'

"'In that case it will cost you 10 cents.'

"'Very good. And you will milk the quart from the cow in my servant's presence?'

"'Yes—for 15 cents.'"

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Tuberculosis of the Dorsal Vertebræ in a Mare [*W. Brown, M.R.C.V.S.*].—Animal five years old had "filled hocks" and from them rather stiff motions. Treated, she got over it. Later she had influenza badly, and then presented a most noticeable manner of moving her neck and head which were very stiff. Notwithstanding special treatment applied for this, the immobility of her neck and head persisted, and in fact gradually became more marked. At that time she always rested her near foreleg in a forward position about one foot in front of the other and stood with her nose pointed out. When trotted, she went lame on the near foreleg, and grunted going down hill. The appetite remained good, but she had to be fed from the manger owing to her practical impossibility to take her food otherwise. She was placed in a box stall loose; she was turned out, but gradually became thinner, "lost the muscles of her neck," gradual paralysis set in, and she was destroyed. At the post-mortem the lesions were found on the dorsal vertebræ, which were firmly attached together and which had nodular growths on the spinous processes. These were examined at the Royal College and pronounced to be tuberculous. The record of the case was illustrated by handsome photographs.—(*Veter. Record.*)

Abdominal Abscess with Peritonitis as Sequelæ [*J. J. Aitken, Capt. A.V.C.*].—The history of a fatal case of peritonitis which was observed in a twelve-year-old mare. The manifestations had been quite obscure and the diagnosis difficult to make. The animal, while on observation, was treated for anæmia. Her temperature had ups and downs varying between 101° F. and 103.4° F. She had some abdominal pains, but rectal examinations were not very satisfactory. Various difficulties had been noticed in her defecation. Possibility of an abdominal tumor was entertained. Finally, after a few days, the

mare died. At the autopsy, a small quantity of purulent material was found in the left iliac region. There were evidences of well-marked peritonitis in the portion of the peritoneum forming the vesico-uterine ligament and also congestion of the floating colon in which some three or four pounds of fæcal matter tinged with blood and coated with mucus, were found. There was an abscess in the vesico-uterine ligament, with rupture of the walls through which its contents had escaped in the peritoneal cavity. The abscess was large enough to contain about two pints of pus. The spleen was slightly enlarged. The other organs were found healthy.—(*Veter. Record.*)

A Case of Tuberculosis in a Horse [*James Anderson, M.R.C.V.S.*].—Big well-bred six-year-old Clydesdale gelding reported as having worms and being off his food. He, indeed, passed lots of *Strongilus armatus*. He is in a weak condition, pulse slow, temperature 101° F., respiration normal, mucous membranes rather pale. He stands with near forefoot a little in advance of the off forefoot and carries his head a little depressed. He got some worm powder and began to eat better. Yet he points his foot more, his neck is stiffer and more extended. He moves more stiff and on backing cannot take off his forefeet from the ground. Temperature is raised, 103° F. The condition grew worse. He carries his head lower and his nose pokes out more. There is a small swelling in front of the scapula, running up the neck a few inches. Tuberculosis of the neck is suspected, and tuberculin injected gave a good reaction, the temperature running up to 106° F. The animal is killed as tuberculous. Post-mortem shows that he was suffering from general tuberculosis, both cavities being affected. In the abdomen, tubercular peritonitis, spleen badly affected and weighing twenty-two and one-quarter pounds. Bacilli were found on examination, mesenteric glands are diseased, liver cirrhotic without tubercles, kidneys enlarged but free from tuberculosis. Tubercular pleuresy extensive. Lungs perfectly healthy. Bones of the neck are more or less affected with tubercular periostitis. In some cervical vertebræ the spinal canal is also the seat of disease.—(*Veter. Record.*)

Tuberculosis of the Retropharyngeal Lymphatic Glands [*Walter Jowett, F.R.C.V.S., D.V.H.*].—To show the frequency of such lesions and the importance of their being

looked for at post-mortem, the author extracts from his notes taken at a hundred consecutive post-mortems the following facts:

In the lungs, lesions were found in sixty-five cases, in the bronchial glands in sixty-two and in the mediastinal glands in forty-two. Next in order of frequency come the retropharyngeal glands affected in thirty-nine animals. In the mesenteric glands lesions existed in thirty-five animals, in the liver in thirty-four, the portal lymphatic glands showed lesions in sixteen. The pleura was diseased in sixteen, the peritoneum in three only, the submaxillary in five, the spleen in three, whilst the dorsal and sternal lymphatic glands, udder and mammary were found diseased only in two.

These post-mortems have been made in animals which in the majority of cases gave no clinical indications; to all appearance were in perfect health and in many cases in good condition. But all had been reacters to tuberculin test. An important fact to notice is that in four of the thirty-nine animals where lesions existed in the retropharyngeal glands, no other trace of tuberculosis could be found elsewhere. In eight of the one hundred animals which had reacted, the lesions were detected only after a most searching and minutious examination, namely, in the retropharyngeal glands alone in four, in the liver and portal glands alone in two, in the bronchial glands in one, and in the mesenteric alone in one.—(*Veter. Record.*)

Impaction of the Rumen in a Dairy Cow [*H. Thompson, M.R.C.V.S.*].—Dairy cow gets in a field of ripe standing oats and overgorged herself. Result, an impaction of the rumen, with all its manifestations. Treatment, Hyposulphate of Soda, and standardized fluid extract of ginger of Parke, Davis & Co. in one and one-half ounce doses. Six hours later, no change. Sulphate of magnesia, aloes and same dose of fluid extract of ginger. After ten hours, slight improvement; linseed oil and a third dose of ginger. After two hours the bowels are moving. Cow is improving, but yet gets another dose of ginger. To the effects and actions of this last drug, the author attributes the success of the case.—(*Veter. Record.*)

Sarcoma of the Hind Leg in a Dog—Amputation [*G. H. Wooldridge, F.R.C.V.S.*].—A male dachshundt, much reduced in flesh, has had a tumor in front of the left metacarpus, which was excised but recurred after a while and grew quite rapidly. This second growth was removed, but same results

followed. Attempts to check it with caustics failed. The dog grew thinner and a swelling appeared behind the thigh, which became hard, indurated and not very painful. Malignant sarcoma was suspected, the owner being very desirous to save the dog's life, if possible, he was put on the operating table, anæsthetized, the leg amputated at the tibio-tarsal joint and the enlarged popliteal lymphatic glands removed. The case did well, wounds healing rapidly. The dog regained his spirit and put on flesh. Examination of the nature of the growth under the microscope proved it to be spindle-celled sarcoma.—(*Veter. Journ.*)

Chronic Metritis in a Bitch [*By the Same*].—Record of a fox terrier slut which had occasional drip of blood-stained discharge—from the vulva. Pus in the uterine horns was made out; histerotomy recommended and performed. The uterus removed weighed two and one-half pounds. The contents consisted of purulent bloody material.—(*Ibid.*)

Carcinoma of the Testicle and Alopecia in a Dog [*By the Same*].—Aged black Pomeranian dog was brought to the author to be destroyed on account of "his age, of the swelling between his hind legs and being bald." The swelling was a diseased testicle and if removed the dog might live a few years more. The owner would not consent. The alopecia began by the dog loosing some of his hairs on his neck. He was treated by an empiric without result. Then the hairs on his belly began to fall and at that time the swelling on the testicle made its appearance. Soon and gradually the hairs on the back came off. The general condition had been good all the time. There was no apparent irritation of the skin and no other lesion than the loss of hair could be found. The right testicle was large and firm, the left was also, but not as much. Both were painless. The right testicle weighed one pound and one ounce. It was carcinomatous in nature.—(*Ibid.*)

Amputation of a Bullock's Leg and Successful Application of a Wooden Leg [*John Cameron, M.R.C.V.S.*].—A steer had a broken leg about the right metacarpal bone. The leg was much swollen and as it was at night the true nature of the injury was not exactly made out. Yet splints and bandages were applied and covered with plaster of paris. A week later a small abscess appeared above the top of the bandage,

which was opened. After a while, noticing that the animal did not use its leg as well as might be expected, the bandage was removed and it was found that union had not taken place, that a large patch of skin was dead, leaving a big open wound and exposing a comminuted fracture. The leg was amputated at the knee, between the rows of small bones, with all antiseptic precautions possible. The wound did comparatively well, although some difficulty was met with on account of the shrinkage of the skin, saved to cover the stump. An artificial leg was made, to which the animal soon got quite accustomed. He received abundant nourishment, grew bigger and fatter, to finally come to a useful end.—(*Veter. Journ.*)

FRENCH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Rupture of the Tendon of the Internal Flexor of the Metacarpus [*L. Dupas, Army Veterinarian*].—No record of a similar accident has been found by the author. A twelve-year-old trooper has become suddenly very lame on the right foreleg. He walks with difficulty, carrying his hind legs under him and with a jump advances his fore parts; the right leg being thrown forward as one piece and slightly in abduction. The animal rests on his well leg. On the internal face of the forearm, a little below the lower end of the radius, there is a very tender spot, with a slight cutaneous abrasion. The pain is such that the animal rears up when the slightest pressure is put on it. Besides these, an abnormal subcutaneous depression is felt, with the sensation of bone under. Upwards this is bound by a small swelling, and below, the free extremity of a hard, rolling cord is detected. There is no swelling nor bloody infiltration. A diagnosis of rupture of the tendon of the internal flexor metacarpi was made, probably due to a kick. Douches were prescribed. Improvement is already marked on the following day. Walking is less difficult. Flexion and extension of the canon are still reduced. There is a slight œdema, which fills and conceals the depression of the inside of the forearm observed

the day before. The tendinous cord is not so readily defined. The animal was better the second day. A blister was applied on the leg. On the 26th day after the accident the horse went to work.—(*R. G. de M. Vete.*)

Diaphragmatic Hernia of the Right Lobe of the Liver in a Cow [*Mr. Rouard, Army Veterinarian*].—This was a surprise of post-mortem and was discovered in a cow that had never revealed her condition by any manifestation. The animal was in fair condition. On opening the chest a mass, black in color and as big as the fist was found lying on the anterior face of the diaphragm muscle. In the right and superior portion of the phrenic centre, there was an opening, only big enough to push the thumb through it. It is regularly round and has some reddish connective bands which unite the posterior face of the muscle to the anterior of the liver. A portion of the right lobe of the liver has passed through that opening and on the anterior face of the diaphragm is continued with the mass in the chest, which is covered by the diaphragmatic pleura. In excising the growth carefully there were found in it the pleura, the peritoneum surrounding the liver, Glisson's capsule and the hepatic tissue in its normal condition.—(*Rev. Veter.*)

Epithelial Cancer of Caudal Origin in a Cow [*Prof. Noussu*].—"In clinics, the most unexpected observation can be recorded and the most ordinary (in appearance) lesions may prove of exceptional interest."

A cow has had three peculiar lesions on her tail which have shown a tendency to spread. The first appeared on the tip of the organ, then some way higher, and the third nearer to the root. They all have had a warty appearance, varied in size and were surrounded by a skin which was thick, inflamed and adherent to the tissues underneath. Examination under the microscope of sections from these tumors revealed their nature, it was an epithelial cancer. Complete amputation was performed and temporary relief obtained; but after a short time the cancerous generalization had made extensive progress. Among its manifestations was a peculiar deformity that had taken place on the hip of the left side. An enormous swelling having developed between the ischial tuberosity and the trochanterian region. A rectal examination confirms the suspicion of abdominal generalization. The lymphatic glands are all involved and form a bosselated chain which extends in the subsacral region from the tail

way forward. The animal was destroyed. At the post-mortem no lesions were found in the thoracic and abdominal cavities, all the viscera being free from disease. The sub-lumbo-sacral neoplastic tumor of the hip is enormous. It is granular, with lardaceous, yellow-grayish tissue. Here and there it shows a centre softened and containing pus and necrosed muscular tissue. The muscles surrounding are also involved; the veins of the thigh and hip, largely dilated, are thrombosed.—(*Rec. de Med. Veter.*)

Depilation in Veterinary Surgery [*Messrs. Simonian and Neau, Army Veterinarians*].—Having observed that an abnormal swelling would often take place on a field of operation where antiseptic measures had been minutiously carried out and where, notwithstanding, healing by first intention had taken place, the authors inquired into the cause of this, and found that this swelling could be attributed to shaving. Having a median neurotomy to perform, they had the region shaved the night before the operation, and when the time for operating came, they found that the shaved part was the seat of a local inflammation due no doubt to infection by the razor. They then experimented with all kinds of razors and have never met with one which would not have the same accident more or less. Indeed, to be of perfect use, the razor must be extremely sharp, have an edge varying with the condition and hardness of the hair and besides be applied in given regions, some being rather difficult to shave.

To avoid the use of the razor, could not some other means succeed as well in removing the hairs from a field of operation? The authors have tried a depilatory mixture which is truly perfect. Take equal parts of monosulphide of sodium, quick lime and powdered starch. Mix the sodium and starch first, add the lime and when the mixture is thorough, add enough water to make a paste. The hairs are clipped as short as possible, the region washed and dried and the paste spread over. It is left on ten or fifteen minutes, when the surface is thoroughly washed to take off the paste. There then remains a surface absolutely glabrous, not irritated and asceptic, in which the hair-bulbs remain perfect and where hairs will grow over again, with their original color. The paste must be used when freshly prepared and only for the time it is to be used.—(*R. G. de M. Vete.*)

Tuberculosis of the Bladder and of the Urethra [*Mr. Bedel*].—A cow coughs, loses flesh rapidly and makes frequent

efforts to micturate. The prescapular lymphatic glands are swollen and auscultation reveals suspicious râles in the thoracic cavity. Tuberculosis was suspected and tuberculin test decided upon. But the animal died before it could be applied. The autopsy revealed a generalized tuberculosis in all the thoracic and abdominal organs. The vesical mucous membrane presented, near the neck of the bladder, some small nuclei of tuberculosis; five existed in the urethra, accounting for the difficulty of micturition observed during life.—(*Revue Veter.*)

Bovine Nodular Helminthiasis is an Œsophagostomiasis [*Mr. Marotel*].—This disease is characterized by the formation in the intestinal walls of tuberculiform nodules, in all of which is enclosed a larval nematode. The zoological nature of these worms is yet much discussed; some consider them as uncinaries, others claim that they are œsophagostomes. The studies of the author which have brought him to this last opinion, have caused him to form the following conclusions: (1)—In bovine nodular helminthiasis, the metamorphosis of the larvæ into adults always takes place in the canal of the intestines and never inside of the nodules. (2)—It ordinarily takes place towards April and June when the worms, aged eight or ten months, measure about four or five millimetres. (3)—It gives birth to typical œsophagostomes. It is, therefore, an œsophagostomiasis and not an unciniarosis.—(*Rev. Veter.*)

Fatal Hemoptysis in a Steer Suffering with Broncho-Pneumonia [*Mr. Pierre Bitard*].—This animal was going to be put to fattening regime to prepare him for market. He has been working hard and been exposed to heavy rain for a whole day. He probably felt the effects of this exposure, as he was taken with rheumatic pains all over, his joints were swollen and an attack of acute rheumatism was threatened. This was, however, avoided, and thanks to an energetic treatment of alkalines and salicylate with frictions and warm blanketings, the steer resumed a satisfactory condition and was placed then under the regime for getting fat, which he followed for over two months, when he suddenly gave signs of being very ill. The author visited him and found him suffering with broncho-pneumonia. A severe treatment was prescribed and followed by return of the appetite and rumination; the only symptom remaining being a certain irregularity in the respiration and a thick hard cough. One morning he was found dead in his stall. In the abdomen

the visceras were found bloodless. In the chest, the lungs are pale and emphysematous. The right lung is hepatized and on the upper border presented a broad surface where the visceral pleura is raised, and under it is a hard, dark mass, a large clot of blood extending into the bronchia, trachea and vasal cavities. —(*Prog. Veter.*)

ITALIAN REVIEW.

By Prof. A. Liautard, M. D., V. M.

A Case of Nephralgia [*Dr. Arnaldo Fumagalli*].—The diagnosis was confirmed only at post-mortem, although by exclusion of possible cystitis, acute or chronic nephritis, or even of a moving kidney, nephralgia had seemed the only possible conclusion to arrive at. The history of the case was that a steer, aged six years, that had never been ill, had done heavy work, and had been at times, say every eight, ten or twenty days, presenting peculiar symptoms. He was dull, would not lay down, kept his hind legs spread apart with the tail raised and striking right and left. These manifestations would last several hours, at times diminishing and then again returning more severe; saliva would flow abundantly from the mouth, the respiration would be accelerated, the eyes much injected * * * and then all would stop as quick as it came; all the troubles would subside and by his appearance the animal seemed in perfect normal condition. Unable to make a diagnosis at once, the author visited the animal several times and watched for an occasion to observe the symptoms himself, but he could never detect anything that would guide him. He, however, observed that on pressing over the lumbar region he could obtain from the steer a manifestation of pain more marked on the right than on the left side, no matter how slight was the pressure. Rectal examination, chemical analysis of the urine, minute examinations of all the functions, nothing abnormal could be detected. As the animal was in good condition he was sent to the abattoir. The most careful inspection of every organ failed to show the slightest lesion, except that the right kidney presented a strong

pigmentary color similar to that of roasted coffee seed; the left kidney had its normal aspect.

The absence of all lesions seem to justify the diagnosis of nephralgia due to periphic irritation of the renal branches of the great sympathetic.—(*Il Nuovo Ercolani.*)

THE ACTION OF THE URINE OF HEALTHY HORSES UPON THE VIRUS OF GLANDERS [*Dr. Prof. C. Neucioni*].—After several experiments that the author made to find out what would be the effects of the urine of healthy horses upon the bacillus of glanders, he arrived at the following conclusions:

1. That the urine of healthy horses kills in a maxima of forty hours and a minima of thirty, the virulent bacillus of glanders.

2. Filtration through a F. Chamberland filter does not take off from the urine its microbicid quality. Therefore, the idea that the death of the bacilli is due to vital concurrency between micro-organisms must be laid aside.

3. Heating at 100° C. during twenty minutes has no effect upon the microbicid property of the urine towards the bacilli and consequently it is not to thermogenous substances that urine owes its power of destruction towards the virulency of the bacillus.

4. *Bacillus mallei* keeps in water its pathogenous power much longer than in the urine of healthy horses. The microbicid action of the urine cannot be attributed to an hydrolitic phenomena.—(*Il Nuovo Ercolani.*)

A CURIOUS CASE OF FOREIGN BODY IN A CALF [*Dr. Alfonso Palagi*].—On the 7th of July, 1907, a calf was bought and after remaining twelve days at his new owner's he was resold to another man. At that time he was in good health and remained so for fifty days after, when he was kept among others turned out to fatten. On the morning of the 5th of September, the owner discovered that on the right side of the abdomen, a little above and in front of the umbilicus, the calf had a swelling as big as the head of a boy, oval in shape and rather hard to the touch. The author was called and examined the calf, which exhibited much pain when the tumor was manipulated. On that account a thorough diagnosis could not be made out, although it was evident that it was not a hernia. Thinking it to be an abscess, proper treatment was prescribed and directions left, that information be sent as soon as the tumor showed indications of

getting soft. After a few days the only change that was reported was that the tumor had diminished, was not larger than a turkey's egg, but that it still remained hard. However, on the 17th of the same month, seventy-four days from the date of the first purchase, a yellowish discharge, mixed with sand and air was noticed coming out from the apex of the tumor and on passing the hand over it, the owner felt a rough body pushing away through the skin, he took hold of it and pulled away a branch of willow tree, as big as a pencil, and measuring fifty centimetres in length. Cicatrization followed without difficulty. It is wonderful to see such a long piece of wood remaining for such a time and having never given rise to any morbid manifestations.—(*Il Nuovo Ercolani.*)

Laceration of the Rectus Femoris [*Prof. G. Gambarotta*].—Heavy draught horse drawing a very heavy load, slipped backwards in starting and dropped heavily to the ground. The harness was taken off, the animal remained quiet for some little time and after violent efforts, succeeded in getting up. The right hind leg is disabled. The horse walks with great difficulty on three legs, the toe of the right hind foot drags on the ground, the external angle of the hip is down and all the joints of the leg are in semi-flexion. There is a wide depression on the stifle and the anterior face of the thigh. Diagnosis of the laceration of the rectus femoris was made and the prognosis is quite serious. The owner will not allow the horse to be killed on account of his qualities and of his value. During three days continuous irrigations were applied on the stifle joint and after that a severe irritating blister was applied. Three weeks after, the animal rested on his leg and two weeks later was able to resume his work.—(*Il Bullet. Vet. Ital. and B. V.*)

Salivary Calculus in Steno's Duct of Horses [*Dr. Nicola Oreste*].—A concise case recording the history of a horse which presented the symptoms of calculus in the duct of steno. As the animal was a stallion used for private breeding purposes, it was objectionable to have him operated on the cheek on account of the cicatrix, and it was decided to attempt to remove the stone per mouth. With a speculum widely open, the cavity was kept sufficiently large to allow the introduction of a grooved probe into the opening of the canal and to push it some five or six centimetres when the calculus was felt. With a gentle pressure from outside, it was displaced and soon there dropped into

the hand of the operator two calculi, one weighing ninety grammes and the other sixty. The former was seven centimetres long and twelve in its larger diameter, the latter was only four centimetres long and eleven in diameter. There was no further trouble.—(*La Clinica Veterin.*)

Cuti, Dermo and Ophthalmo Reaction with Tuberculin [*Dr. Alberto Panizza, of Modena. Veterinary School*].—The author has made numerous experiments on these methods of diagnosis, he passes in review the work that has been made before him and relates his own which he has carried on with many animals, which he has divided into four series. In a first series he tested the cuti reaction of Lignieres, in the second the dermo-reaction as described by Vallee, in the third the ophthalmo-reaction as modified by Lanfranchi, and in the fourth the three together. He then came to the conclusions:

1—Cuti and dermo-reactions when applied separately to non-tuberculous animals cannot be relied upon.

2—Ophthalmo-reaction has a very characteristic and marked effect on tuberculous animals, which does not occur in healthy animals.

3—Ophthalmic reaction will also occur in cases of actinomycosis.

4—When ophthalmo, cuti and dermo reactions are applied simultaneously there will be an ocular reaction in diseased animals and a doubtful one in healthy.

5—Which may be confirmed by resorting after, to the ophthalmic test alone.—(*La Clini. Veter.*)

An Observation of Eustrongylus Gigas [*Dr. Rinaldo Pico*].—Similar cases are not common, and although kidneys are the ordinary seat where the nematode develop, there are cases where it is found in other parts of the organism. Besides those already on record, the author relates the following:

A pointer dog after making a bad jump presented on the left inguinal region a small swelling. At first it seemed not to interfere with the dog, but after a few days it grew so much larger that it required attention. It formed in the left groin a tumor rather well defined, about as big as a potato and having on the centre a cyanotic spot. To the touch it is hard, rather bosselated, not painful or reducible. Suspecting it to be a fibroma, the dog was secured and anæsthetized with intraperitoneal injection of chloral hydrate. Proceeding in the removal of the

growth it was found to contain a large cyst in the centre of which was a big strongilus gigas, female, which measured seventy-five centimetres in length. The dog had never presented any trouble about his urinary function. After his death, which occurred two weeks later, a careful post-mortem examination failed in finding any lesions in the kidneys or in any part of the urinary apparatus.—(*La Clin. Veterinaria.*)

GERMAN REVIEW.

By J. P. O'Leary, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

Intoxication Through Animal Food Stuffs [*Dr. Movel, Toulouse*].—When man and animals contract severe diseases through eating animal food stuffs, it is usually the meat which has undergone a specific decomposition with the formation of toxins microbic in origin. However, it remains for us to decide how these changes are brought about. As a result, two very distinct groups of diseases present themselves and which must be more clearly differentiated from each other than has hitherto been the case. The term (Fleisch vergiftung) "meat poisoning," constitutes an abusus linguæ. The name "intoxication" can only be applied to Botulism, the basis of which is a very poisonous toxin (similar to that of tetanus). Van Ermongen was the first who discovered the bacillus botulismus. The poison originates in the dressed meat of healthy animals or in its conserves, where it accumulates in the deeper parts and is protected from the air. The meat assumes a changed appearance, and the disease resulting therefrom is distinguished in this particular manner, that mycotic intestinal inflammation is lacking throughout. The prominent symptoms are those of diplopie, mydriasis, ptosis, which can only be the result of poisoning in the strict sense of the word. Totally different from the sausage poisoning, together with its nature and symptomatology, are the other diseases emanating from meat, the so-called "meat poisonings," which occur more frequently and appear epidemically among people at intervals, arise from an infection which the slaughtered animal had acquired during life. The regula-

tions prescribed for determining the harmfulness of this infected meat depends exclusively upon its origin, and almost invariably inquiry reveals the fact that it was derived from animals which had been affected with umbilical and uterine inflammations, septic enteritis, pneumo-enteritis and similar diseases. The meat, although in a fresh condition, is dangerous to eat; it has a normal appearance, a good taste and odor and even chemical examination reveals nothing harmful (Eber). Infection is due to the Bacillus enteritidis (Gärtner, 1888; Johne, 1894), and to closely related microbic types, gastro-intestinal inflammations being the predominating lesions. The infection in man, however, resembles typhoid fever, cholera, and their intermediaries. The micro-organisms in many respects resemble the B, paratyphicus B, the bacillus psittacosis, the bacteria of hog cholera, cholera nostras. They all belong to one family and resemble very much the coli (Eberth) group. They are all equally virulent for man and animals. They prevent or retard the process of putrefactive decomposition. As the muscle sugar undergoes fermentation, for this reason the suspicious meat appears normal. With regard to the remarkable epidemics caused by such meat infections, one in particular deserves especial mention, and which occurred in the French city Gand in 1905. A veterinary meat inspector examined some sausage which had been declared suspicious by the police, as some persons became ill after eating it. The inspector found this sausage to all appearances healthy. He ate two or three pieces of it, as did also a colleague and an employee of the slaughter house, and thereupon released the sausage, because it had a good taste and smell. Ten to twelve hours later all three persons became sick, had fever, vomiting and diarrhœa. The attending physician pronounced it a case of ptomaine poisoning. On the fifth day the inspector died. Could this have been the result of meat poisoning? The autopsy on the body of the veterinarian proved otherwise.

The stomach and intestines were intensely inflamed; here and there gangrene had set in, and in all the organs myriads of microbes were present, with which other animals were inoculated successfully. In the liver and kidneys and large vessels, masses of these organisms were found in clumps and to the extent that after straining a section they could be discovered with the aid of a lens. The most remarkable fact in connection with such meat infections is that the period of incubation is very short, frequently only a few hours, also that the severity of the

disease bears no relation to the quantity of the aliment eaten. Finally, a great deal depends upon the individual susceptibility and immunity. Concerning the pathogenesis of these meat infections the etiological investigations have furnished additional data which is very interesting. As to the dissimilarity of these diseases, gastro-enteritis is the more prominent, the intestines particularly contain enormous quantities of bacteria. These may be distributed from the dejections of the diseased animals by the various intermediaries and infect anew both man and animals. Opportunity also presents itself to infect the freshly-drawn milk in such stables where infected animals are housed and which accounts for the mysterious appearance of epidemics in the country of gastro-intestinal inflammations, continued fevers, cholera infantum and similar affections which hitherto had been difficult of explanation. Publications of this nature are intended at the present time to attract the attention of medical practitioners, veterinarians and hygienists to the etiology of these diseases.

Poisoning through eating cream puffs occurs in the same manner, also milk diet, vegetables, and even by eggs, the latter when hens are kept in crowded roosts, the oviduct becomes infected and before the shell is formed. In England and America the fact has long been demonstrated that oysters are dangerous, even when they are eaten while fresh, if they are taken from polluted waters or reservoirs the drainage of which was defective. Similar conditions prevail with regard to fish and clams. As a result of these opinions the question arises, How preventive measures can be employed to obviate such infections. They must consist solely upon sanitary police supervision with regard to the origin of the food stuffs in question, not merely in the line of meat inspection. The control should be extended to the rural districts, which is more important than that of cities and large towns.—(*Deutsche Tier. Wochen., Feb.* 22, 1908.)

The Auditory and Vocal Organs of the Parrot [*A. Denker*].—No essential anatomical variation exists in the auditory apparatus of the parrot and that of other birds, with the exception of the macula neglecta being absent. Tense elastic fibres of various lengths are present in the basilary membrane which act mechanically. These individual cords vibrate to the sound of a tone. Not only the parrot but also the other birds hear the human voice. The faculty of the parrot to imitate the human voice is not due to the formation of the larynx, as that

organ is not so widely different in construction as compared with other birds. The peculiarity of the parrot in imitating the human voice is derived from the well-developed arching of the mouth and pharynx and to the peculiar formation and great development of the muscles of the tongue.—(*Der Tierarzt, 47 Jahrg No.* 5.)

Papillary Acanthomes on the Internal Surface of the Ears of the Horse [*Pröscholdt, Berlin*].—In the course of his clinical experience, Pröscholdt observed frequently peculiar formations on the inner surface of the ears of horses, and which in many cases were visible at a distance on inspection of the ear, but nevertheless were only visible in the majority of cases when the muscle of the ear was averted. They appear as circular elevated growths which are sharply differentiated from one another by their color.

Pröscholdt made this disease the object of his investigations and arrived at the following histological and clinical conclusions:

1st—On the inner surface of the ear we frequently find flat warts of various shapes and sizes.

2d—They occur in two types, the pigmented and non-pigmented.

3d—The non-pigmented type predominates.

4th—The position of the wart is exclusively on the inner surface.

5th—Both types resemble each other very closely histologically and differ only in pigmentation.

6th—The neoformations are to be designated as papillary acanthomes.

7th—The term acanthome has hitherto not been employed in veterinary medicine.

8th—The new formation is composed of a primary epithelial and secondary connective tissue growth.

9th—The experiments conducted with regard to its transmissibility to horses, dogs, cats and rabbits, were resultless.

10th—The etiology of the acanthomes remains unknown.—(*Aus der medizinischen Klinik der Köngl. Tierarzt. Hochschule, Stuttgart, Archieves für Wissenschaft und Prakt, Tievheilkundl.*)

It is impossible for a man attempting many things to do all things well.—(*Xenophon.*)

CIVIL SERVICE EXAMINATION.

VETERINARIAN.

The United States Civil Service Commission announces an examination on December 15, 1908, at the places mentioned in the list printed by the Commission, to secure eligibles from which to make certification to fill a vacancy in the position of veterinarian (male), salary $1,200 per annum. Quartermaster's Department at Large, Washington, D. C., and vacancies requiring similar qualifications as they may occur in any branch of the service.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	*Weights.*
1. Letter-writing	10
2. Veterinary anatomy and physiology	20
3. Veterinary pathology	20
4. Veterinary practice	40
5. Training and experience	10
Total	100

Applicants must indicate in their applications that they are graduates of reputable veterinary colleges.

Age limit, 20 years or over on the date of the examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed by the Commission, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

CORRESPONDENCE.

NINTH INTERNATIONAL CONGRESS OF VETERINARY MEDICINE AT THE HAGUE, SEPTEMBER 13-19, 1909.

The Secretary-General states that the prospects of the Congress to be largely attended are most promising. The committee has received communications from every part of the world, and the efforts of the various national committees in the different countries are already felt.

The International Commission and the many veterinary journals are sparing no efforts to make the Congress a success.

Two circulars have already been freely distributed and a third will soon be issued, which will be sent only to members of the Congress whose names shall be entered with Prof. D. F. van Esveld, Veterinary School of Utrecht, Holland, who is General Treasurer.

This circular will, with the names of the members of the Permanent Committee, contain supplementary communications relating to the national committees, the names of the reporters upon the various questions treated before the Congress and other statements thought necessary by the Executive Committee.

Veterinarians desirous to know of the progress made in the preparation of the Congress are notified to have their names registered as members with the General Treasurer and to send him the cotisation of 21 francs. Besides their card of membership, they will also receive one copy of the regulations of the Congress and later all the publications of the Executive Committee.

For the Executive Committee,
D. A. DE JONG, *General Secretary*,
Leyden (Holland), 20 Maresingel.

SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Secretary Lyman announces appointments by President Rutherford as follows:

Committees 1908-1909.

Executive.—M. H. Reynolds, chairman; Tait Butler, W. H. Hoskins, E. A. A. Grange, R. A. Archibald, W. H. Dalrymple.

Publication.—C. J. Marshall, chairman; E. B. Ackerman, R. C. Moore, O. L. Boor, R. P. Lyman.

Finance.—Thomas Bland, chairman; F. C. Grenside, O. E. Dyson.

Diseases.—V. A. Moore, Chairman; J. R. Mohler, C. H. Higgins, A. T. Kinsley, L. E. Day.

Intelligence and Education.—L. Pearson, chairman; S. Brenton, Jos. Hughes, M. H. McKillip, J. H. McNeil.

Association of Faculties.—C. E. Cotton, chairman; G. H. Berns.

Legislation.—J. P. Turner, chairman; W. G. Hollingworth, A. S. Cooley, T. E. Budd, J. R. Mohler.

Necrology.—J. F. Winchester, chairman; Wm. Dougherty, R. W. Ellis, Sesco Stewart, J. L. Robertson.

Resolutions.—A. H. Baker, chairman; Wm. Herbert Lowe, J. V. Newton, G. W. Dumphy, H. D. Gill.

Resident Secretaries.

United States.—Alabama, L. E. Case, Auburn; Arizona, J. C. Norton, Phœnix; Arkansas, R. R. Dinwiddie, Fayetteville; California, P. H. Browning, San Jose; Colorado, Mark White, Denver; Connecticut, G. W. Loveland, Torrington; Delaware, H. B. McDowell, Middleton; District of Columbia, B. T. Woodward, Washington; Florida, T. J. Mahaffy, Jacksonville; Georgia, W. A. Scott, Columbus; Hawaii, W. T. Monsarrat, Honolulu; Idaho, Geo. E. Noble, Boise; Illinois, L. A. Merillat, Chicago; Indiana, J. W. Klotz, Noblesville; Iowa, R. R. Hammond, Cherokee; Kansas, R. F. Eagle, Kansas City; Kentucky, J. W. Jameson, Paris; Louisiana, J. A. Goodwin, New Iberia; Maine,

A. Joly, Waterville; Maryland, F. H. Mackie, Baltimore; Massachusetts, B. D. Pierce, Springfield; Michigan, H. M. Gohn, St. Johns; Minnesota, M. F. Leffingwell, Austin; Mississippi, E. M. Ranck, Natchez; Missouri, T. S. Hickman, Kansas City; Nebraska, C. A. McKim, Lincoln; Nevada, J. O. Jacobs, Reno; New Hampshire, F. P. McCushing, Keene; New Jersey, J. Payne Lowe, Passaic; New Mexico, F. L. Schneider, Albuquerque; New York, E. B. Ackerman, Brooklyn; North Carolina, A. Fisher, Charlotte; North Dakota, T. D. Hinebach, Tower City; Ohio, G. W. Cliff, Upper Sandusky; Oklahoma, Robt. A. Phillips, Oklahoma City; Oregon, W. Dean Wright, Albany; Pennsylvania, S. H. Gilliland, Marietta; Philippine Islands, C. E. Newsom, Maila; Porto Rico, T. A. Allen, San Juan; Rhode Island, T. E. Robinson, Westerly; South Carolina, L. Driedheim, Rock Hill; South Dakota, S. D. Brimhall, Redfield; Tennessee, W. P. Ellenburgher, Nashville; Texas, J. W. Parker, El Paso; Utah, N. C. Spaulding, Jr., Provo; Vermont, F. W. Chamberlain, Burlington; Virginia, R. R. Clark, Hampton; Washington, S. B. Nelson, Pullman; West Virginia, L. N. Reefer, Wheeling; Wisconsin, Chas. Schmidt, Dodgeville; Wyoming, A. W. Whitehouse, Laramie.

Canada.—British Columbia.—S. F. Tolmie, Victoria, B. C.; Alberta, J. C. Hargrave, Medicine Hat, Alta; Saskatchewan, J. F. Burnett, Regina; Manitoba, F. Torrance, Winnipeg, Man.; Ontario, T. Thacker, Renfrew; Quebec, M. C. Baker, Montreal; New Brunswick, D. McCuaig, McAdam Junction; Novia Scotia, W. H. Pethick, Antigonish.

Cuba.—N. S. Mayo, Santiago de las Vegas.

Argentine Republic.—Uruguay, D. E. Salmon, Montivideo.

South Australia.—J. Desmond, Adelaide.

INTER-STATE ASSOCIATION OF LIVE STOCK SANITARY BOARDS.

The twelfth annual meeting of the Inter-State Association of Live Stock Sanitary Boards, held in Washington, D. C., September 14, 15 and 16, was the most successful in the history of the Association. There were representatives present from twenty-four states and the Hawaiian Islands. There were twenty representatives from the Bureau of Animal Industry who contributed greatly to the success of the meeting.

The forenoon of the first day was entirely taken up with the address of welcome by A. D. Melvin, Washington, D. C., the address of the president, Chas. G. Lamb, of Colorado, and the usual routine business.

A committee was appointed, to report at the next annual meeting, consisting of A. D. Melvin, Washington, D. C., chairman; S. B. Nelson, Washington; H. B. McDowell, Delaware; Tait Butler, North Carolina; and W. H. Dalrymple, Louisiana, to compile and arrange the laws and regulations of the various states, governing live-stock sanitation, together with a list of sanitary officers.

A committee was appointed by the president to draft a Live-Stock Sanitary Law to serve as a basis for uniform legislation in the various states; also to prepare a statement showing the fundamental principles which should enter into the live-stock laws; this committee to report at the next meeting of the association. The committee consisted of the following members: M. H. Reynolds, Minnesota, chairman; Tait Butler, North Carolina; Leonard Pearson, Pennsylvania; D. F. Luckey, Missouri; R. P. Steddom, Washington, D. C.

In the afternoon, Tait Butler, North Carolina, read a paper on "Progress of Tick Eradication." The discussion on this paper was opened by Cooper Curtice, Washington, D. C.

A. D. Melvin, Washington, D. C., read a paper on "Control of Hog Cholera by Serum Immunization." * D. F. Luckey, Missouri, opened the discussion.

The rest of the afternoon was spent in a general discussion of these papers and all the salient points in the control of these diseases were elucidated.

The entire second day was given to the subject of tuberculosis. The following papers were presented:

"Federal, State and City Co-operation in the Eradication of Tuberculosis," D. F. Luckey, Missouri.

"Control of Tuberculosis in Domestic Animals in Pennsylvania," L. A. Klein, Pennsylvania.

"Ways and Means of Eradicating Tuberculosis in Domestic Animals," O. E. Dyson, Illinois.

"Bovine Tuberculosis in Louisiana and Some Other Southern States," W. H. Dalrymple, Louisiana.

"Control of Tuberculosis," A. D. Melvin, Washington, D. C.

"State Meat Inspection," J. M. Wright, Illinois.

* October Review, page 14.

These papers were discussed collectively by men who have been engaged in the work of control of tuberculosis in the various states and for the general government, for the past ten or twelve years; men who knew what they were talking about, and who covered the subject from all standpoints.

On the evening of the second day a banquet was given in the small banquet hall of the Hotel Raleigh. Plates were laid for forty. A number of the representatives were accompanied by their ladies, which added greatly to the pleasure of the evening. President Lamb acted as toastmaster.

On the third day, S. H. Ward, Minnesota, read a paper on "Glanders." The discussion was opened by J. M. Wright, Illinois.

Victor A. Norgaard, of Hawaii, gave a talk on "Glanders in Hawaii, and the Efforts of this Territory to Protect Itself Against the Repeated Introduction of this Disease from California." The discussion of this paper was opened by R. A. Archibald, California.

John R. Mohler, Washington, D. C., then read a paper on "Three Diseases of Animals Which Have Recently Assumed Importance to the State Sanitarian." * The diseases were Infectious Anemia or Swamp Fever, Mycotic Lymphangitis (pseudo-farcy) and Chronic Bacterial Dysentery (Johne's disease). Dr. Mohler states that these diseases have recently been found to have a greater distribution in the United States than has heretofore been known.

W. H. Dalrymple then gave a talk on "Anthrax in Louisiana."

S. B. Nelson, Washington, talked on "Veterinary Sanitary Laws in the State of Washington."

W. H. Dalrymple, of Louisiana, was elected president for the ensuing year; S. B. Nelson, Washington, vice-president; Chas. E. Cotton was re-elected secretary and treasurer. The time and place of the next meeting was left to a committee consisting of the officers of the association.

The Committee on Line and Open Season, consisting of Tait Butler, North Carolina, chairman; R. A. Archibald, California; G. T. Bryan, Oklahoma, and J. H. Wilson, Texas, submitted the following report, which was adopted by the association:

* Published in the November REVIEW, page 198.

GENTLEMEN—Your committee on "Line and Open Season" begs leave to submit the following report:

QUARANTINE LINE.

1. That the line and quarantined area in Virginia remain the same as for 1908, except that Pittsylvania County be added to the free or non-quarantined area, and that Warwick County be added to the infected or quarantined area.

2. That the line and quarantined area in North Carolina remain the same as for 1908, except that the counties of Union, Anson and Warren be added to the free or non-quarantined area.

3. That the line and quarantined area for Tennessee remain the same as for 1908, except that the counties of Pickett, Putnam, White, DeKalb, Warren, Marion, Franklin, Giles and Shelby be added to the free or non-quarantined area.

4. That the line and quarantined area for Alabama, Mississippi, Louisiana, Texas, California and Arkansas remain the same as for 1908.

5. That the line and quarantined area for Oklahoma remain the same as for 1908, except that part of Blaine County south of the Canadian River be added to the free or non-quarantined area.

INSPECTION PRIVILEGES AND RESTRICTIONS RELATIVE TO THE MOVEMENT OF CATTLE.

1. That the regulations relative to the inspection of cattle for movement from the states of Virginia, North Carolina, South Carolina, Georgia, Tennessee, Alabama, Mississippi, Missouri, Louisiana, Texas and California remain the same as for 1908.

2. That the county of Washington, Arkansas, be added to the territory of that state, out of which cattle may be inspected for movement under the usual restrictions.

3. That that part of Kay County lying east of the Arkansas River; that part of Payne County north of the line between townships 19 and 20; that part of Canadian County south of the Canadian River and that part of Caddo County north of the line between townships 10 and 11 north, in the State of Oklahoma, be added to the territory of that out of which cattle may be inspected for movement under the usual restrictions. And that inspection privileges be withdrawn from Osage County.

Open Season.

1. That the regulations regarding the open season remain the same as for 1908, for the states of Virginia, North Carolina, Louisiana, Missouri, California, Oklahoma and Texas.

2. That there be no open season for the states of South Carolina, Georgia, Tennessee and Mississippi.

3. That the open season for the state of Arkansas be from November 15, 1908, to January 31, 1909.

The committee desires to offer the suggestion that, in its opinion, the maintaining of any considerable area from which cattle may be inspected for movement, other than immediate slaughter, is not generally conducive to the best efforts towards tick eradication, and consumes resources which could be more profitably spent in eradicating ticks, and that therefore this practice and all other inspection privileges should be discouraged, and this area reduced to a minimum at the earliest possible time.

The following resolutions as submitted by the committee, D. F. Luckey, Missouri, chairman; S. H. Ward, Minnesota; W. F. Pflaeging, Wyoming, were adopted by the association:

1. *Whereas,* During this meeting we have learned with profound regret of the death of Hon. S. L. Patterson, Commissioner of Agriculture of North Carolina, and

Whereas, The foresight, liberality and great interest of this layman in live stock sanitary work was clearly manifest in his official support of the preliminary work necessary to first demonstrate the feasibility of tick eradication from large areas at a time when even professional sanitarians failed to give the work their support; therefore, be it

Resolved, That the Inter-State Association of Live Stock Sanitary Boards, in convention assembled, offer its tribute of respect to his memory and extend our sympathetic condolences to his family in their great bereavement.

Whereas, Since our last meeting death has removed from our midst our worthy and esteemed co-worker, Judge S. W. Hudson, and

Whereas, His services as a member and president of the Missouri Board of Agriculture, and as a member of the Missouri State Fair Association, were of a high and efficient character, and

Whereas, The members of this association, after only a very short acquaintance with him, recognized in him such sterling worth and character, have honored him with the office of vice-president, be it

Resolved, That the Inter-State Association of Live Stock Sanitary Boards in annual convention assembled, do commend the character and life work of S. W. Hudson and extend its most cordial sympathy to his family and to his friends, and lament the loss to the state of Missouri of his services, and be it further

Resolved, That a copy of these resolutions be spread upon the records of this association and a copy be sent to his family.

Whereas, Through the untiring efforts of the Bureau of Animal Industry of the United States Department of Agriculture it has been demonstrated that a vaccine can now be produced at a nominal cost, which, when introduced into healthy hogs will immune them to that disease known as hog cholera, be it

Resolved, That this association, in view of the efficacy of the vaccine as a preventive and control measure, heartily recommend that all State Legislatures be requested by their representatives now assembled, to appropriate sufficient funds whereby such vaccine may be manufactured and distributed under the direction of the state authorities charged with the control of animal contagious and infectious diseases of their respective states. Be it further

Resolved, That the delegates of states represented at this convention extend to the Hon. Secretary of Agriculture, their appreciation of the excellent work of his officials in solving the control of a disease which annually causes an immense monetary loss, not only to swine breeders but to the entire United States.

Resolved, That this association strongly urges upon every state the enactment of some provision looking to the immediate eradication of tuberculosis from the herds of its state institutions.

Whereas, It is the consensus of opinion of all veterinarians experienced in sanitary work that a public watering-trough is the most common source of the spread of glanders and other contagious diseases, be it

Resolved, That the Inter-State Association of Live Stock Sanitary Boards strongly recommends closing all public watering-troughs in and during any outbreak of glanders, and be it further

Resolved, That hydrants from which teamsters may draw water in private buckets be substituted for the type of watering-troughs now in common use.

Resolved, That the management of State Fairs and Live Stock Expositions be requested to assist in the eradication of tuberculosis to the extent of prohibiting the exhibition of all cattle for prizes, or their exposure for sale, unless they are officially certified to as having received the tuberculin test within a period of one year, and no reaction shown.

Resolved, That the Bureau of Animal Industry be requested to assist as far as possible in the testing of cattle for breeding and dairy purposes, intended for interstate shipment in those states requiring this test and requesting such assistance from the Bureau.

Whereas, It would appear the authorities of a certain state are placing in the hands of laymen tuberculin which is applied by them under no restrictions; as the test is a delicate one, requiring an intimate knowledge of conditions unknown to laymen, which through ignorance on the part of the one applying the same, has raised the question as to the reliability of the test, be it

Resolved, That this association condemn the distribution of tuberculin by state authorities to others than veterinarians.

Resolved, That the distribution and sale of mallein and tuberculin should be regulated by law, with the object of preventing therein its fraudulent use.

Whereas, The disease known as rabies has been found to be increasing in prevalence in various parts of the United States, and

Whereas, The origin of this disease has been definitely proved to be dependent upon direct inoculation, practically always through the bite of a rabid animal, and

Whereas, The Board of Commissioners of the District of Columbia, recognizing these facts, have promulgated an order requiring the muzzling, for a period of six months, of all dogs while at large in the District of Columbia, be it

Resolved, That such action of the Board of Commissioners of the District of Columbia be highly commended by the Interstate Association of Live Stock Sanitary Boards, with the recommendation that similar action be taken by all sanitary officers in other sections where rabies is known to prevail.

Whereas, There are a number of states and localities within said states where no adequate facilities are maintained for the

slaughter of tuberculous cattle, and whereas, the U. S. Federal regulations prohibit the shipping of tuberculous cattle from one state to another, necessitating the destruction of diseased animals within its borders, thus causing a wanton loss to owners of animals not sufficiently diseased as to cause their condemnation as a food, be it

Resolved, That this association recommend that the law be modified to allow the shipment interstate of tuberculous cattle to any abattoir at which the U. S. Department of Agriculture maintains inspection. Shipment to be under such restrictions as the Secretary of Agriculture in his wisdom may determine.

Whereas, When cattle are shipped from one state into another for breeding or for dairy purposes, are tested with tuberculin at destination and found diseased, it sometimes happens that the consignor is willing to accept the return of the cattle, and

Whereas, The prohibition of the shipment of such cattle in such cases usually involves the buyer and seller in a dispute that interferes with prompt and proper disposition of the cattle, be it

Resolved, That this association request that when cattle shipped from one state into another for dairy or breeding purposes are found to be tuberculous upon inspection at destination, that the proper authorities of the state into which the cattle have been shipped be authorized to issue, upon request from the consignor, a permit for the return of said cattle in quarantine to the point of origin, provided notice of such return is given immediately to the proper authorities of the state to which the cattle are to be returned.

Whereas, The success of the 12th annual session of the association has, in a large measure, been due to the assistance rendered by officials of the Department of Agriculture, be it

Resolved, That this association extend to said officials their hearty thanks for the able and scientific papers presented; for their assistance in obtaining for the association a complete stenographic report of the proceedings, and in divers other ways, which have been conducive in making this session the most successful in the history of the association.

CHAS. E. COTTON,
Sec. and Treas.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

THE BEST MEANS OF COMPENSATING FOR THE CRIME OF MURDER.*

It appears on examination of the criminal records that since 1847 to 1906, a period of 59 years, that in the State of New York, there have been 770 convictions for murder in the first degree, and that from this number 123 persons have had their sentence commuted to life imprisonment, leaving 647 persons to either pay the death penalty, or while in waiting for execution to sicken and die, or become insane and thus be removed to some state institution for the care of such.

The most definite data on this question begins with the electrocution law which went into effect January 1, 1889, covering a period of 17 years to 1905 inclusive, during which time 200 persons were convicted of murder in the first degree. It appears from the record in the department of prisons that 100 persons have been executed, and also from the office of the Secretary of State that 31 persons have had their sentences commuted to life imprisonment, which leaves 69 unaccounted for, and it is very possible that any of these are still in prison and some of whom may yet escape the death sentence.

After careful consideration, I think that it is entirely safe to say that during the last 60 years 123 convicted murderers have had their sentence of death changed to life imprisonment, and that that number is about 16 per cent. of the total number convicted in those years.

In this connection, it may not be amiss to call attention to the fact that some of the number may have had their sentences again commuted or have been pardoned outright. There seems to be no way to tell in what cases this is true. The following is taken from the report of the Superintendent of Prisons for the year 1906, the latest report on the subject. "Of 202 prisoners who were in custody at sometime between 1870 and 1880 there was at the close of the year 1905, 60 such persons still in confinement, 18 of whom had served 10 years, 66 had been discharged and 76 had died."

"Less than 12 per cent. of the 142 convicts whose cases had been disposed of served 20 years, less than 3 per cent. served 25 years, and but one had served more than 29 years. Of the 202 prisoners considered in the tables 35 or 17 per cent.

* Report of Committee on Medico-criminal Jurisprudence.

became insane. Of those who died, 48 or 66 per cent. served less than 10 years. . It appears from these statistics that less than six life prisoners in each 100 remain in prison 20 years."

The value of a human life to civilization depends upon two features of man's existence, namely, what he is capable to perform by brawn and muscular effort on the one hand, and the exercise of intellectual genius on the other. Someone must dig the trenches and lay the foundation upon which the humble dwelling, the palace or the cathedral is to stand, and no matter in whichever sphere the workman is engaged, that unit of labor, the individual, has a value. It matters not whether it be the artisan or the architect at work on the structure, and it may be the former can comprehend only his daily task. The other through the exercise of the imagination portrays with detail in perspective the genius of his mind, looking beyond the foundation work, and viewing as it were, the finished product of architectural labor. In the one case it is commercialism plus its measure of humanity, in the other; it is the exercise of the same forces plus some genius.

The most recent estimate on the value of human life appeared in an article on economics in the July Number of the *Ohio State Medical Journal*, which puts the potential value of the artisan at $12,000 per man. This would be accepted as conservative as it relates to the purely artisan class, but is too low an estimate on the potential value of professional life.

By a brief review of the dockets of the Criminal Courts, we find that the greatest per cent. of murder is committed by the artisan and so-called middle class, than by people of leisure and semi-wealth. And it is quite admitted that out of this combination of human life and effort originate and reside the fundamentals and the germ of substantial success in our commercial life, to say nothing of the many successes of social life.

It would presume on your patience at this time to undertake to define and point out some of the causes which make for social unrest, and a desire on the part of some persons to exercise violence as a means of expression in seeking justice for the infliction of real or imaginary wrongs imposed on the individual or on an aggregation of individuals, and above all that more drastic sense of individual judgment which in climax commits murder, but we will on the other hand offer a compensating solution for the crime of murder which clings to the race, leaving its indelible stain on the brow of every generation throughout the existence of man.

For an individual to commit cold-blooded murder is an awful crime, and for the state to commit murder after careful investigation and it may be said upon premeditation, is, I believe a still greater crime. To be sure, the act is carried out under the protection of legality, and the officer of the law is compelled to perform a painful duty, all for, it is said in the name of justice, to protect society it is said, and it's the penalty for crime.

Our civilization it would seem is far enough advanced to abolish barbaric methods as a part of the function of civil government, and your committee believes this statement justified as it relates to the present statute which imposes the death penalty as the proper punishment for the crime of murder, and we offer as a substitute to give the criminal an opportunity to compensate society and mankind in general as the proper punishment for this kind of crime. We therefore, would suggest to the state authorities to repeal the death penalty, and in its stead provide and alternate such as, life imprisonment at manual labor, or the convict under sentence may offer his live body for the purpose of adding to medical science more definite knowledge to determine the theory of the transmission of diseases of animals to man, by methods which in no way would inflict bodily torture, or necessarily take his life. Such valor on his part would mean a sincere desire to do penance for crime, a desire to make good for wrong doing, a desire to justify however small the traits of his nature that possess nobility, and a hope, that at last he can serve some beneficent purpose in behalf of his fellow-kind.

"To rob the man of the possibility of expiating his crime by his repentance or by acts of virtue; to close to him without mercy every return towards a proper life, and his own esteem; to hasten his descent, as it were, into the grave still covered with the recent blotch of his crime, is to my eyes the most horrible refinement of cruelty."

We believe there are voices of justice and reason ringing in the ears of judge and jury not provided for on the statute page while sitting in judgment upon the crime of fellow-man, pleadings perchance which say, what warrant have we to require of one convicted, his life, when we ourselves are so liable to error.

It is estimated that it costs to obtain conviction for murder in the first degree on the average, about $10,000 in this state

If the potential value to the community of labor of the $2 per day man is $12,000 he would if convicted of murder in the first degree and upon paying the penalty consume his value in its relation to the community as measured by dollars, which is equivalent to a total loss, and standing as a convict before the bar of justice, if he accepts the alternate as making an endeavor to compensate for his crime, he would in a large measure make good such loss, if not in some cases fully compensate for the wrong committed. It is from this data that your committee abstracts the following conclusions.

FIRST. For the state to take a human life is brutal and unwarranted in the light of civilization.

SECOND. That legal murder is no compensation for crime, because it cuts off all opportunity on the part of the criminal to make compensation, and that the death penalty is not a protection to society against crime.

THIRD. That all values should be conserved, and so utilized as will produce the greatest amount of efficiency, whether it be of the brawn or the brain type.

Mr. PRESIDENT, It is for these reasons that your committee offers this report, in the hope and confidence that it will be received in the spirit in which it is submitted, a plea for justice and worthy of consideration by a Christian state, and with all, to provide a way by which erring man can expiate for his crime, contributing to the relief of mankind, a solution to body ills for which the common folk are not always responsible.

CLAUDE D. MORRIS, Chairman.

TUBERCULOSIS CONFERENCE.

The convention on animal tuberculosis called by the University of Illinois was in every way successful. On Tuesday evening, October 13, Dr. H. L. Russell, of the University of Wisconsin, gave an illustrated address upon the methods of handling the disease in Wisconsin. Wednesday morning Dr. Bang, of Copenhagen, read an address in which all of the significant questions involved in this troublesome matter were clearly discussed from the standpoint of his experience of twenty-five years in Denmark. This was followed by an address by Dr. Leonard Pearson, dean of the College of Veterinary Science, University of Pennsylvania.

In the afternoon clinical demonstration was made with three cows reacting to the tuberculin test but in no other way giving symptoms of the disease. All three were found seriously infected. None of these cows would have been suspected by any observer to be diseased but the internal condition of the animals showed that in a short time they would be dangerous members of the herd. The evening session was devoted to the discussion of the general situation and the appointment of a permanent committee to recommend measures for the control of animal tuberculosis in Illinois. The committee consists of the following members: E. Davenport, director of the experiment station, chairman; P. S. Haner, Taylorville, chairman of the Illinois Board of Live Stock Commissioners; L. N. Wiggins, Springfield, president Illinois Dairymen's Association; A. P. Grout, Winchester, president Illinois Live Stock Breeders' Association; A. O. Auten, Jerseyville, president Illinois Dairy Cattle Improvement Association; Eugene Funk, Shirley, representing the cattle feeding interests; J. P. Mason, Elgin, president Illinois State Farmers' Institute. It is said that the committee will not urge legislation but will press a campaign of education and co-operation of stockmen in dealing with the disease.

MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of the M. V. M. A. was held at Waterville, Elmwood Hotel, October 14, 1908. President Murch occupied the chair and Secretary Joly was at the desk.

Members present: Murch, Russell, Lord, Blakely, Parcell, Sally, Potter, Perry and Joly. Visitors: Hon. John M. Deering, Dr. W. H. Robinson, George Littlefield, Harry Smith and J. H. Montgomery.

Dr. Parcell was invited to address the meeting upon his recent trip at Washington in attendance at the International Congress on Tuberculosis, and was followed by Hon. John M. Deering, who also attended at Washington. Both gentlemen were very interesting and brought a very animated discussion upon the subject of tuberculosis. All members taking part in the discussion.

Mr. Harry Smith, representing the firm of Parke, Davis & Co., spoke at length upon the value of the veterinary drugs of-

fered to the veterinary profession by his company. Mr. Smith had a fine display of the latest preparations.

Drs. Murch and Joly reported their experience in the method of diagnosing glanders by the agglutination method.

The following veterinarians were admitted to membership: Drs. E. E. Russell, of New Harbor; W. L. Mebane, of Bangor; W. H. Robinson and W. H. Lynch, of Portland.

Dr. Thomas Don, of Caribou, was rejected.

Moved by Dr. Sally and seconded by Dr. Russell, that in the future each candidate to membership to this association should be voted upon separately.

Motion carried.

Moved by Dr. Perry and seconded by Dr. Blakely that whenever a member is appointed to prepare a paper for discussion that in the event that he cannot appear personally, he must send his paper to the secretary to be read at such meeting. Motion carried.

Moved by Dr. Russell, seconded by Dr. Sally, that a committee of three be appointed on New Legislation. Motion carried.

Drs. Murch, Joly and Lord were appointed.

A vote of thanks was taken in appreciation of the subjects treated by Drs. Parcell, Russell and Hon. John M. Deering.

Drs. Kerry and Sally were appointed to read a paper at the next meeting, which will take place in Augusta, January, 1909, at the Cony House.

Adjourned.

A. Joly, Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

This association held its regular monthly meeting at Broad and Filbert streets, Philadelphia, on Tuesday, November 10, 1908.

There were present seventeen of its forty-one members.

The chair was occupied by the vice-president, Dr. Frank H. Schneider, and the regular order of business was gone through.

The interest of the evening was centred around the following questions, which were proposed for discussion, impromptu:

1. "What is the best treatment for forage poisoning?"

2. "Does a veterinarian practicing in Pennsylvania have a *legal* right to test cattle with tuberculin and *not* report reactors to the State Live Stock Sanitary Board?"

3. "Does Dr. Robert Koch claim that there cannot be intestinal infection of humans from tuberculosis of a bovine source?"

4. "Is there much danger in puncturing a horse's chest to draw off fluid in a case of hydrothorax, and what is the prognosis in a chronic case that has run three weeks or more, is eating well and yet getting progressively weaker and thinner?"

5. "How many temperatures before and after the injection of tuberculin do the State Regulations require in applying the tuberculin test to imported cattle?"

The association had the pleasure of hearing from Dr. Woodward, of Glasgow, Kentucky, who was on a visit to the city. He mentioned with regret the deplorable lack of state control of veterinary practice and animal diseases in Kentucky, citing as a particular instance the present ravages of contagious abortion among horses and cattle in that state.

There were also present representatives from the 1909 class of the Veterinary Department of the University of Pennsylvania.

The meeting adjourned at 11.30 p. m.

S. Lockett,
Acting Secretary.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly meeting was held November 18, 1908, at 514 Ninth street, N. W., Washington, D. C. The President, Dr. John Lockwood, occupied the chair.

Numerous cases of excessive ptyalism were reported by Drs. Dornheim, Lockwood and Walmer. Dr. M. Page Smith reported a very interesting case of persistent hymen in a valuable mare. The subject of patent foods was discussed at length.

The death on November 9, 1908, of Dr. William Edwin Yetton, an old and valued member of the association, was reported, and resolutions of condolence were adopted.

Fred. M. Ashbaugh, *Secretary.*

NEWS AND ITEMS.

PRIDE went out on horseback and returned on foot.—*Italian Proverb.*

THE International Tuberculosis Exhibit is now open in New York, at the Museum of Natural History.

THE 25th annual meeting of the Veterinary Medical Association of New Jersey takes place at Trenton, January 14, 1909.

THE twenty-sixth annual meeting of the Ohio State Veterinary Medical Association will be held at the Ohio State University, Columbus, January 12-13, 1909.

PRESIDENT-ELECT WILLIAM H. TAFT is partial to the Kentucky type of saddle horse and will, it is said, ride a single footer when he moves into the White House.

THE Veterinary Practitioners' Club of Hudson County, N. J., will celebrate its second anniversary by a banquet at the Columbian Club, Jersey City, on Tuesday evening, December 15.

DR. WALTER MCHENRY, a graduate of the Veterinary Department of the University of Pennsylvania, 1908, has been appointed assistant in bacteriology in the New York State Veterinary College, Cornell University.

EXERCISING THE DOG.—The Vicar—Do you give your dog any exercise, Mr. Hodge?

Farmer Hodge—Oh, yes, he goes for a tramp nearly every day.—(*Tit-Bits.*)

DR. GEO. W. TURNER, B.A.I., formerly at Highwood, Ill., has been transferred to Kansas City, Mo. Dr. Turner has been sixteen years in the service and his transfer is in the form of a promotion, with an increase of salary.

DR. ALEXIS CARREL, of the Rockefeller Institute for Medical Research, New York, read a paper on "Recent Studies in Transplantation of Organs in Animals," at the meeting of the American Philosophical Society, Philadelphia, on November 6.

DEFINED.—A little girl who had listened to a discussion of nature fakirs in literature when asked to define the human and animal families replied:

"A brute is an imperfect beast; man is a perfect beast."—(*Judge.*)

REVERSED.—"Yes," remarked the race horse, "all my achievements have been due simply to putting my best foot forward."

"Yes?" replied the mule. "Now, I find that I accomplish most by putting my best foot backward."—(*Philadelphia Press.*)

TWENTY-FIVE days without a bite of food or a sup of water, and not only alive but kicking!

The last word is used advisedly, for it was a horse that performed this wonderful feat, and it has so far recovered from the effects of its enforced fast as to be able to munch her hay and eat her oats like a yearling.—(*Denver News.*)

PROFESSOR L. H. BAILEY has been given leave of absence from the directorship of the College of Agriculture of Cornell University to devote his time to the chairmanship of the commission appointed by President Roosevelt to investigate the conditions of rural life. The other members of the commission are: Henry Wallace, of *Wallace's Farmer,* Des Moines, Ia.; President Kenyon L. Butterfield, of the Massachusetts Agricultural College; Gifford Pinchot, Chief of the Forest Service, and Walter H. Page, editor of the *World's Work.*

HON. L. WHITNEY WATKINS, Senator-elect to the Michigan Legislature, is a prominent live-stock man, interested in all that appertains to the advancement of scientific agriculture, being the junior member of the firm of L. D. Watkins & Son, known in the stock yards and markets from Kansas City and Omaha to Buffalo. The Senator is a first cousin of the Associate Editor of the REVIEW. His father was a guest of the A. V. M. A. at Detroit in 1900, and those present at the banquet will recollect with pleasure his felicitous remarks upon being dubbed "Doctor" by Toastmaster Salmon. The Watkins farm is said to be the largest and one of the best-managed farms in the state of Michigan.

The Year Book of the Department of Agriculture, just published, estimates the number of horses of the various breeds registered in the stud books of the United States at 342,340. Of this number 206,000, or more than one-half, are trotters. The number of registered runners (thoroughbreds) is about 50,000; of French draught horses (Percherons,) 27,000; of English draught horses (Clydesdales and Shires), 22,000; of Belgian draught horses, 3,000; of Kentucky saddle horses, 7,000; of German coach horses, 2,500; of English hackneys, 3,300; of French coach horses, 2,000, and of Cleveland Bay coach horses, 1,800. A singular feature of the statistics of registration is that all foreign breeds excepting the hackneys show a larger number of stallions than of mares in the stud books; the German coach horses, for example, having 2,149 stallions and only 290 mares, while the number of registered hackney stallions is now about 1,200 and of mares about 2,100.

Peculiarities of the Horse.—The horse is a strict vegetarian, and the most particular animal about the quality of his food known in domestic life. His taste and sense of smell are acute, and he will almost famish before he will partake of tainted food or water. He is a creature of strong muscles, and shows a constitution of iron when put to tests of endurance, but for all these qualities his is a delicate physical make-up in certain ways and easily upset in health by ill treatment. Heat him up and let him stand in a draught, and pneumonia or at least a bad cold will result; nag and bully him and he will steadily lose flesh, no matter how well fed; work him immediately after a hearty meal and he is liable to indigestion and colic; give him poor care and he will prove weak in the performance of his duties, and his useful life will be shortened. On the other hand, the delicacy noted in him will turn just as quickly in response to good treatment. Good food, sanitary stabling and kind handling will tell their story on almost any horse in an incredibly short time. A thin and abused horse under a new and kindly master who is a real horseman can be made to pick up flesh at the rate of a pound a day till he reaches the normal state, and with his flesh there will be a return of spirit, and, best of all, a return of respect for that certain elongated, two legged creature on whom the horse in slavery must rely for care.—(*Exchange.*)

AMERICAN VETERINARY REVIEW.

JANUARY, 1909.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, November 15, 1908.

THE ULTRAVISIBLE VIRUSES.—*The Ultravisible Viruses* is the title of a long article published in three numbers of the *Journal of Comparative Pathology and Therapeutics,* by Sir John McFadyean, the learned veterinarian, principal and dean of the Royal Veterinary College and president of the Royal Veterinary College of England; an article which is like all that comes from the pen of Sir McFadyean, full of interest and valuable suggestions.

Beginning by saying that, "During the last thirty years the application of the method of researches initiated by Koch and Pasteur has revealed the fact that the cause, formerly vaguely designated 'the virus,' of many of the contagious or infectious diseases, is the presence within the body of animal or vegetable parasite (bacteria or protozoa) which, although minute, can be made manifest to the eye by the use of the microscope 'and that' in all these cases the term 'virus' has lost its former usefulness; there are yet a considerable number of cases where that term is still the only one that is justified in speaking of the cause of the disease. There are, indeed, contagious, infectious or inoculable diseases in which the ordinary bacteriological methods, so fruitful in other cases, have entirely failed to resolve the virus into a visible micro-parasite. Perhaps in some cases fur-

ther investigations may show that the cause micro-parasite, has been overlooked; but in other cases there appears to be sufficient reasons for abandoning such expectations and for holding that the causal parasites have not been simply seen, because they are too minute to be made visible to the eye, and thus a group of diseases has to be recognized as caused by "*ultravisible viruses;*" bearing in mind, however, that the belief that the viruses of certain diseases are ultravisible, rests mainly on the fact that filters which are efficient for the arrest of the smallest of the known visible microbe, such as that of fowl cholera bacillus or the bacillus of influenza, allow the viruses of these diseases to pass through their pores.

Following this opening of the subject, the writer initiates us to the use of the domestic filter, and principally to those used in laboratories for scientific purposes; such as the Chamberland and the Berkefeld, with their different degrees of closeness and density, giving wise advice as to the manner of regulating the process of filtration, and closes what might be called the preface of the article.

* * *

We are now entering into the consideration of the diseases so far known, for which the denomination, ultravisible viruses, can find its application. But between the visible and ultravisible, there is a certain gap, not very wide to be sure, and these ultravisible bacteria do probably differ among themselves in size. "We, however, as a matter of fact, know at least one bacterium which is just on the borderline, between the visibility and ultravisibility, and that is the bacterium of contagious bovine pleuropneumonia, which Nocard and Roux succeeded in cultivating in collodion capsules of broth, introduced into the peritoneal cavity of the rabbit and subsequently in vitro, and which with a magnification of 2,000 and a brilliant light, they recognized just on the limit of visibility and which they inferred had a diameter somewhere between 1/5th and 1/10th of a micron, say one-fifth or one-tenth of the size of a fowl cholera bacillus." The virus of pleuro-pneumonia, therefore, belongs to the visible and

not to the ultravisible class, is cultivable with more or less success outside of the body, but owing to its small size cannot be identified in the diseased tissues or exudates, in which it is still for all practical purposes invisible. Then proceeding with the enumeration and detailed consideration of the viruses with the established claims to be regarded as ultravisible, the author treats on them in a long and interesting study, of which I will only make concise extracts.

1st. The Mosaic or Spotted Disease of the tobacco plant. The juice of diseased plants retains its infective power after it has passed through a porcelain filter. The virus has great resisting power and can be inoculated.

2d. Foot and Mouth Disease.—The first disease of animals where Loefler and Frosch discovered that its virus is not arrested by a porcelain filter, although in their experiments they were brought to the conclusions "that the virus was particulate in its nature since repeated passages of the diluted lymph through the close-grained Kitasato filter rendered the liquid non-infectious." Fruitful as the discoveries and researches have been on the nature of the virus, nothing beyond the fact that it is ultravisible has been gained.

3d. African Horse-Sickness.—In 1900 Sir McFadyean wrote that the cause of horse sickness was an ultravisible virus and was uncultivable. From his experiments, he also showed that it is far less fragile than most of the other ultravisible viruses.

4th. Fowl-Plague.—Name given by Italian scientists to a disease that prevailed in Italy, which, although it resembles fowl cholera, differs from it principally by the absence of the easily recognized fowl cholera bacteria in the blood. The virus of Fowl-Plague is ultravisible, passing through a Berkefeld filter. All attempts to cultivate outside of the body have failed.

5th. Yellow Fever.—The first human disease due to an ultravisible virus, which has not yet been cultivated artificially.

6th. Cattle Plague.—The virus of which passes through a filter which arrests the smallest visible bacteria.

7th. Sheep Pox.—For Borel the virus largely diluted passes a Berkefeld filter and the filtrate is sometimes infective. But Chamberland's filter arrests it.

8th. Epithelioma Contagiosum of Birds.—Virus is contained in nodules which develop in the epidermis of legs and wings. Sometimes and almost generally arrested by filtration and sometimes not. It is said not to be necessarily invisible and may be at least as large as the organism of bovine pleuro-pneumonia. The virus has not yet been cultivated artificially.

9th. Swine Fever (Hog cholera).—Referring to the late work done in the United States and that done by himself, the author, after having said that acute and chronic or mild outbreaks of swine fever are caused by ultravisible virus, writes: "The virus has so far proved to be uncultivable as well as invisible."

10th. Rabies.—If Nocard and others have said that the virus of rabies was not filtrable, Remlinger showed that under some conditions it passed a Berkefeld filter, if it was arrested by a close-grained Chamberland. Up to the present time the virus has not been cultivated and its actual nature is uncertain.

11th. Cow-Pox.—The virus is filtrable, but may, like the virus of bovine pleuro-pneumonia, not be entirely invisible.

12th. Equine Pernicious Anemia.—Of all diseases which to the point of view of veterinary pathology is of the greatest interest. The ultravisibility of its virus being well established by the experiments and researches of Carré and Vallée.

13th. Canine Distemper, which according to Carré is due to an ultravisible microbe.

14th. Blue Tongue, an interesting ovine disease of South Africa, which appears to have many analogies with horse-sickness. The virus is filtrable.

15th. Leucocythemia in Fowls.—Affection not uncommon in Denmark, caused by an ultravisible virus, which appears to be uncultivable.

* * *

The space that is allowed me does not permit going in all the details that one can find in the second part of the articles just considered and for more complete information I must refer the reader to the originals, where will be found the entire summary of the article of Sir John McFadyean. In part, it reads as follows: "From the preceding survey, one can see that the diseases caused by ultravisible viruses form a remarkably heterogeneous group. When compared with one another they exhibit differences almost as great as one finds among the diseases caused by visible bacteria. Some of them, such as foot and mouth disease, are among the most contagious diseases known, while others, such as rabies, horse-sickness and blue tongue, are neither contagious nor infectious in the ordinary sense of the words. Some of them, such as horse-sickness and fowl plague, appear to be of a septicœmic type. * * * In most of them, however, there are extensive structure alterations, as illustrated in swine fever, sheep pox and epithelioma contagiosum. With regard to the viruses themselves, it is obvious that they vary considerably in size. * * * One remarkable feature common to the whole of the ultravisible viruses is that they have hitherto resisted to all attempts to cultivate them in artificial media outside the body. Assuming that these viruses are bacterial in their nature, one has great difficulty in understanding why this should be so, for one does not see why the ability of a bacterium to grow under artificial conditions should in any degree be dependent on its size. * * * Another character common to all the ultravisible organisms, is that they appear to be obligatory parasites. No morbid condition of a sporadic character has yet been found to be caused by an ultravisible virus, and such viruses with a saprophytic habit, are also unknown. * * * In the last place, attention may be called to certain possibilities, which are suggested by the facts recently ascertained in connection with one of the diseases caused by an ultravisible virus, viz., swine-fever. * * * Assuming that the lesions, that have always been regarded as characteristic of swine fever, are secondary in

their nature, as advanced lately, and caused by an organism which does not constitute the actual cause and contagium of the disease, the question naturally arises: May not this be true for what are regarded as the essential lesions of some other diseases? In considering what answer should be given, it is well to remember that until the discovery of the ultravisible virus of swine-fever, the claims of the swine-fever bacillus to be regarded as the cause of the disease were generally regarded as satisfactorily proven. But as Dorset, Bolton and McBryde have pointed out, a mistake was made in accepting the effects produced by cultures of the bacillus, when administered to pigs by the mouth, as the exact equivalent of a natural attack of swine-fever! That these effects could not be so regarded was proved by showing that the disease experimentally set up by the bacilli, was not at all contagious, even under the most favorable circumstances, whereas, as is well known, swine-fever is a strikingly contagious disease." "Therefore, it is clear that when any one, as part of the evidence proving that an organism is the cause of a particular contagious disease, claims that he has successfully employed pure cultures of that organism, he ought to show that the experimentally induced disease, when afforded the opportunity, spreads by contagion like the natural disease. And when one reflects on the nature of the evidence, on which it has been held and very generally accepted, that particular bacteria are the cause of contagious diseases, it becomes manifest that in some cases, the proof is no more complete than it was in the case of swine-fever. It is not, therefore, improbable that future investigations, conducted on the lines necessary for the detection of an ultravisible virus, may bring on certain bacteria, at present accepted as the cause of disease, the discredit that has already fallen on the so-called bacilli of swine-fever, swine-plague and canine distemper."

Does it not seem, after all this, that the field of investigation for the bacteriologists is far from being exhausted?

* * *

Alterations of the Sub-Maxillary Gland During an Attack of Rabies.—The researches for the discovery of the microbe of rabies are already very numerous and many are the investigations that have been made and recorded relating to the study of the most minute alterations of the central nervous system, which is the one most affected in rabies and that contains the rabid virus. Since the discovery made by Negri in 1903, these researches have been renewed with the expectation that the discovery might be made, and if the nervous centre has been the principal object, the pathological morphology of the other organs has received much less attention; with the exception of those on the cardiac muscle, the pancreas and other glands made by Doct. A. N. Adamoff, of Petersburg. In the Archives of the Imperial Institute of Experimental Medicine, to which I alluded in my last chronicle, I noticed an article, headed "Alterations of the Sub-Maxillary Gland During an Attack of Rabies," published by Doct. W. W. Podwyssotzki, who related a series of experiments, which he has made with the object of studying the alterations met in one of the important organs which contain the rabid virus, viz., the salivary glands. Among the three large glands that secrete saliva, he selected the sub-maxillary because it is a mucous gland and as such, all the pathological alterations which occur in the structure of its cells would be more marked than they would be in a serous gland. If the pathological morphology of salivary glands in rabies has been neglected, it is evidently because after the great researches of Pasteur upon rabies, the attention of almost all scientists has been attracted either upon its method of preventive injections or upon the study of the lesions of the central nervous system, the principal seat of the disease. And yet it is certain that not only the virus is eliminated with the saliva, but that it exists in the salivary glands. The question is, however, yet the object of discussion. The researches of the author were carried upon the sub-maxillary gland of dogs that died with rabies (street virus) and of rabbits inoculated with fixed virus. He has studied comparatively the gland of mad dogs and that of healthy sub-

jects, submitted to various degrees of activity. This last being realized artificially with injections of pilocarpine, by irritation applied on the cordae tympani, the sympathic, etc., etc.

* * *

From the series of experiments and researches made by Doct. Podwyssotzki, he draws the following conclusions:

1. Among the characteristic lesions in rabies of dogs, which permits the recognition of street rabies, those of the sub-maxillary gland must not be overlooked.

2. In rabies, there are alterations in the secretory elements of the gland, in the cells of the efferent canals, in the interlobular connective tissue and in the nervous ganglions of the gland.

3. The lesions of the secretory epithelium occur in masses, they are not diffuse. The epithelium undergoes an albuminous and fatty degeneration which gradually becomes necrotic. The diseased lobules contain a small number of isolated leucocytes.

4. This character of the lesions in masses is also observed in the inter-lobular connective tissue. They are progressive and located principally around the diseased lobules, then they spread gradually. Where the interstitial tissue is most altered, granuloma and nodules (rabid nodules) are formed, similar to those found in some parts of the nervous system.

5. In the numerous microscopical nervous ganglions that are found in the gland, the same process of degeneration and destruction of the nervous cells with formation of granuloma (rabid nodules) already mentioned in the cerebro-spinal and cardiac ganglions, take place. The nervous cells which are on the point of death are gnawed and eaten by neoformed macrophages.

6. The efferent canals are packed with secretory granulations, which being united, form globes and masses which mix with the cellular elements.

7. In the sub-maxillary gland of rabbits dead with fixed virus, alterations in masses of the glandular lobules are observed.

The interlobular interstitial tissue and the microscopic nervous ganglions in the gland of the rabbit are not altered.

8. No corpuscles of Negri are found in the sub-maxillary gland neither of rabbit nor dog. The big mucinogenous secretory granulations, which are acidophil as the peripheric parts of the corpuscles of Negri, resemble these much, and this resemblance may be a cause of error to an inexperienced observer.

9. In the salivary glands of animals dead with rabies, a very great number of secretory granulations are observed and also giant cells in glands freshly dissociated.

10. The corpuscles of Negri do not constitute the active rabid virus. The true virus on account of its small dimensions is inaccessible to our sight.

* * *

A Study of the Action of Bacterian Flora of the Digestive Canal.—The bacterian flora of the digestive canal has already been the subject of frequent researches with the object of studying its action in the process of digestion. Most generally, dejections were used as material for researches; or again, cadaveric fœces and finally in the products of excretion through fistulas, in which cases their exact localization was not always possible. It is evident that these methods not only do not allow a sufficient exactitude in the study of the bacterian flora of the digestive canal during the life of the animal, without saying anything of the changes that this flora undergoes in one or in another part of the digestive tract; but besides they present some inconvenience from the technical point of view.

It was for this reason that Doct. Aimee Horowitz made the experiments that he related in the Archives of St. Petersburg. He made fistulas on six dogs. In one on the great curvature of the stomach, in another near the pyloric portion of the duodenum, in a third at the end of the duodenum, in a fourth at one metre from the duodenum, in the fifth one metre from the cœcum and on the sixth at the end of the small intestine. The researches of the bacteria in the contents of the stomach and small intestines were made in the six dogs, either when the stomach was empty

or after the animal had fasted 24 hours. In a second series of experiments, after a meal of milk, and in a third, after having eaten the white of a cooked egg. The food was always given after being sterilized. To obtain material for observation through the fistulas, all precautions were taken to avoid possible infection from outside.

The following are the conclusions of the results obtained:

1st. The quantity of bacteria in the stomach and intestines increases regularly from upwards downwards. It is not great in the empty stomach and increases during digestion.

2d. The bacterian flora of the small intestine is composed of permanent and accidental species. These last disappear rapidly.

3d. The permanent bacteria live in special regions of the small intestine, some in the superior, others in the inferior; some such as the (*B. Coli* is met indifferently everywhere.

4th. During the digestion of different food, one will observe in the small intestine, the marked pullulation of some specie, as *Bac. ac. lactici* with a milk diet, *Proteus vulgaris* after eating white of eggs.

5th. Some permanent bacteria of the small intestine, specially those of the lower portion, peptonize and separate the proteic matter; the majority have a certain action on the hydrates of carbon; for instance, transform lactose into lactic acid.

6th. Saprophites, which do not belong to the series of permanent bacteria of the digestive canal, die rapidly when they enter it.

7th. Of all the digestive secretions, pure gastric juice alone kills bacteria. Bile, and biliary acids, pancreatic and intestinal juices are excellent nutritive media.

8th. The products of digestion of proteic substances, that is, their mixture with the juices, are also favorable media for the development of bacteria.

9th. Permanent bacteria of the small intestine prevent *in vitro* the development of facultative saprophites bacteria, which die after one or two days of cohabitation with the *bacillis coli.*

* * *

New Contribution to the Study of Vaccination of Bovines Against Tuberculosis.—If our readers remember the allusions that I have made some time ago to the possible immunity that could be granted to cattle against tuberculosis as attempted by some scientists, by way of the digestive tract, I suppose that the following conclusions that Docts. A. Calmette and C. Guerin advance in the "*New contribution to the study of vaccination of bovines against tuberculosis,*" which they have published in the Annales de l'Institut Pasteur, will be interesting. These conclusions are the results of experiments to test again the possibility of vaccinating cattle by the digestive canal and also the comparative results as obtained by intravenous injections.

1st. By the ingestion of tuberculous bacilli, virulent or modified by heat, one may give to young or adult bovines a relative immunity. When, afterwards, the resistance of the animals so prepared, is tested by giving them a massive dose of virulent bacilli, which would surely infect witnesses, it will be observed that, after from four to six months, they remain free from disease, do not react to tuberculin and that their mediastinal, mesenteric, bronchial and retropharyngeal lymphatic glands contain tuberculous bacilli no more. Inoculations with these glands to guinea pigs remain negative.

2d. By opposition, when, from eight to twelve months, after having resisted to a massive infection by the digestive tract, bovines, thus supposed vaccinated, received by intravenous injections, a dose of virulent tuberculous bacilli, sufficient to kill witnesses in four or five weeks with acute granulie, it is found that the vaccinated animals, after a short lapse of feeling ill, keep for six or eight months all the appearance of perfect health. *They,* however, *keep in their bronchial, and mediastinal glands, virulent bacilli, which can give tuberculosis to guinea pigs.* These bacilli give no manifestation of their presence, not even the positive reaction to tuberculin. But when, after about six or eight months more, immunity of the animal disappears, these bacilli become susceptible of creating tuberculous lesions.

3d. Tuberculous bacilli from cultures, introduced by the *digestive tract* then, after a various length of time, finish by being resorbed in the mesenteric glands, where they are not in sufficient number to create lesions, while introduced by *intravenous injections* they remain *living* and *virulent* in the lymphatic glands of the thoracic organs.

4th. *Tuberculous animals* or those *sensibilized* to *tuberculin* by two or three massive injections of that substance in the veins, offer a very great resistance to reinfections or to severe tuberculous infections, natural or artificial, even if these are made by the intravenous method.

Although smaller, this resistance seems to be of the same nature as those obtained by vaccinations, either by intravenous inoculations of human or bovine bacilli (Behring, Koch and Schultz), or of homogenous bacilli (Arloing) or by subcutaneous inoculations of these same bacilli (Lignieres, Arloing), or again by insertion under the skin of collodion sacs containing cultures of bovine or human tuberculosis (Heymans).

Then *it is not in any way a true immunity,* because the animals, thus vaccinated, although not reacting to tuberculin, remain *carriers of living* and *virulent bacilli* and that those are able, when the resistance diminishes to create in the organism of these same animals serious lesions, and again because, as Roux and Vallée have demonstrated, vaccination by venous or subcutaneous methods do not protect against intestinal infection.

* * *

Bibliography.—Some short time ago a warm friend of mine wrote me from America asking what I thought of an excellent German work on Internal Pathology being revised and brought to modern ideas and discoveries. I answered him that while the work he referred to was very good and one whose general arrangement was superior, I would rather suggest the entire writing of the book, as it was certainly beyond possibility to revise a work written forty years ago, in a manner sufficient to bring it to scientific modern standing.

When I wrote this I had in mind the success obtained by Cadeac's Encyclopedia and principally to that part of it that treats of *Internal Pathology*. It is but a short time since the first edition has come out and already it is exhausted. A second edition is now offered for sale. I have noticed already the first part, that which treats of the mouth, pharynx and stomach. To-day it is the second volume of the second edition of Internal Pathology, continuation of the digestive apparatus, the Intestines.

This volume is, properly speaking, not a revised copy of the first edition. It is an entirely rewritten work, with nearly 150 pages more of reading matter, with 153 more illustrations and with a different arrangement which will prove to all readers of great advantage. Published by the firm of Bailliere and Sons it will certainly meet with as much success as the first.

Decidedly, no, it is useless to revise an old German work, superior as it was forty years ago.

* * *

Among the other communications that I must acknowledge, I may mention: The Report of the works done at the Bacteriological Institute of Halle, by Doct. L. Raebiger; the *Agricultural Journal of Cape of Good Hope,* with an excellent practical article by Dr. W. Robertson, M.R.C.V.S., director of the veterinary laboratory at Grahamstown, on *Tuberculosis in animals and its Relation to Public Health;* a copy of the *Industrial* with catalogue of the Kansas Agricultural College; the Chicago Veterinary College *Bulletin,* and the catalogue of the Colorado State College of Agriculture, department of veterinary science.

And as I am closing, there arrived from Keener & Co., of Chicago, the authorized English translation of Friedberger & Frohner, which I will review in my next. A. L.

THE BUREAU'S EFFECTIVE WORK.

In the December issue of the Review reference was made to the appearance in this country of the European foot-and-mouth

disease, and the alarm that was felt that it might spread throughout the great cattle-raising states of the west and southwest and thereby jeopardize the entire live stock industry of the country, but thanks for the prompt, energetic and drastic work of Secretary Wilson, and Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, in co-operation with state officials, to restrict and exterminate the disease, for it is believed by the authorities at this writing, that they have not only checked its further spread, but have stamped it out and they are now gradually, as conditions warrant, removing the quarantine regulations that were found necessary to prevent a spread of the contagion to the vast area of the country unaffected by the disease. The prompt mastery of this highly contagious and dreaded plague, which is always more or less prevalent in certain countries of Europe, speaks volumes for the efficiency of the work of the Bureau of Animal Industry and the respective state authorities. They arose fully equal to the task of coping with the dangerous and threatening outbreak, and all it meant to one of the most vital and important industries of the country.

At this time the Bureau is engaged in conducting an investigation to determine the origin of the outbreak, but the REVIEW is informed by Chief Melvin that it has not as yet progressed far enough for him to be able to announce definite results, that would enable him to make positive statements as to the source of the infection.

In the copy of "Service Announcements," issued by the Bureau under date of December 15, is contained, Chief Melvin states, as much as he is now able to say regarding the origin of the outbreak. That publication also contains a statement of the situation up to the date mentioned, and as it is practically a history of the outbreak and a statement of what work has been done by the Bureau, the affected territory and the methods pursued for its eradication, the REVIEW believes that it will prove of interest to its readers and takes the liberty of quoting from it.

"For the second time in recent years the bureau is engaged in a campaign for the eradication of foot-and-mouth disease.

The affected states are Michigan, New York, Pennsylvania and Maryland. The disease was first observed in the vicinity of Danville and Watsontown, Pa., and was reported to the bureau by the state veterinarian of Pennsylvania, November 10. The Chief of the Bureau, accompanied by the chiefs of the inspection and pathological divisions, at once went to Danville and confirmed the diagnosis. A quarantine was declared November 12 against the interstate movement of animals from four counties in Pennsylvania. Within a few days the disease was also found in several other counties of Pennsylvania and in the vicinity of Akron, New York, and on November 19 the quarantine was extended to include the entire territory of those two states. It appeared that the cattle causing the Pennsylvania outbreak came through the Buffalo stock-yards, and from Buffalo suspicion pointed to Michigan. Investigations in the latter state confirmed the presence of the disease in several herds near Detroit, and on November 24 the state of Michigan was quarantined. A few days later the disease was also found near Lineboro, Maryland, and that state was quarantined.

The work of eradication is being carried on vigorously in co-operation with the state authorities. The diseased and exposed cattle are being slaughtered and buried and the premises disinfected. The department pays the owner two-thirds of the appraised value of his stock and the state pays the remaining one-third. Other expenses are shared in the same proportions.

The localities in which the disease has so far been found are as follows: Michigan—Oakland and Wayne counties; New York—Erie, Genesee, Monroe and Niagara counties; Pennsylvania—Chester, Clinton, Dauphin, Delaware, Juniata, Lancaster, Lehigh, Lycoming, Montgomery, Montour, Northumberland, Philadelphia, Snyder, Union and York counties; Maryland—Carroll county.

One hundred and forty-eight herds or premises have been found affected, as follows: In Michigan, 8; in New York, 44; in Pennsylvania, 94; in Maryland, 2. Practically all of the diseased and exposed animals discovered up to date have been

slaughtered and the work of disinfection is well advanced. A careful canvass of the infected districts is being made, the inspectors going from farm to farm inspecting the animals in order to make sure that no cases have been overlooked.

It is evident that the present outbreak had its origin in the vicinity of Detroit, Mich., but the investigation has not progressed far enough to determine the exact manner in which the animals became infected. In view of the bureau's strict quarantine on imported animals and the fact that no animals are allowed to be imported from countries where foot-and-mouth disease is known to exist, it has all along been considered highly improbable that the contagion was brought in with imported live stock. It is therefore believed that it must have been introduced in some other way.

It was fortunate that in this emergency the bureau had a large force of trained veterinarians, many of whom had had experience in the New England campaign of 1902-03, who could be promptly assigned to the work of eradication. The good work being done by the force is much appreciated, and the chief is confident that it will lead to another creditable achievement by the bureau in effectively dealing with outbreaks of contagious disease which have menaced the live-stock industry of the country. It is highly important that the contagion should be promptly and completely eradicated, and it is expected and believed that every individual employee engaged in this work will realize his great responsibility and will do all that he can to bring about a successful result.

Members of the force outside of the quarantined area should be on the lookout for new cases of the disease and should promptly report any rumors indicating that it may have spread beyond the localities already known to have been infected."

Following the above well-deserved compliment for the efficiency and skill of the Bureau inspectors in charge of the work of eradicating the disease, their names are given as follows: for Maryland and Pennsylvania: Dr. S. E. Bennett; for New York, Dr. U. G. Houck; for Michigan, Dr. P. H. Mullowney.

The regulations put in force absolutely prohibited the movement of cattle, sheep, other ruminants and swine from each of the states of New York, Pennsylvania, Michigan and Maryland, for any purposes whatever, and it was very largely through this drastic stand taken, along with other preventive measures adopted, that at this writing the REVIEW is in a position to state that the disease has been, it is believed, obliterated from this country.

So prompt and efficacious was the quarantine, the slaughter of diseased and exposed animals and the system of disinfection of premises carried on, that, only one diseased herd has been found since December 11. In a letter to the REVIEW under date of December 23, Chief Melvin says, "While I hope the contagion has now been eradicated, it is, of course, possible that some further cases may be discovered, and a careful canvass from farm to farm in the infected regions is now being made in order to detect any cases that may not have been previously reported. The Federal quarantine in the states of Maryland and Michigan has been modified so as to permit the interstate shipment of live stock for immediate slaughter from those states except from parts of Carroll and Baltimore counties in Maryland, and from Macomb, Oakland, Wayne, Washtenaw and Monroe counties in Michigan, provided the authorities of the state to which the animals are destined have previously signified their willingness to accept them. The modified regulations also permit the interstate movement of hay, straw, and similar fodder, and hides, skins, and hoofs from points in Michigan and Maryland, except the counties and parts of counties named, without disinfection or certification. The quarantine has been modified in this way because no infection whatever has been found in Maryland and Michigan outside of Carroll county, Maryland, and Wayne and Oakland counties, Michigan. The Department will modify and finally remove the quarantine on the other states just as soon as it feels that this can be safely done, but as new cases were found in the New England outbreak of six years ago, several weeks after it was supposed that the disease had been

completely eradicated, we can not afford to take chances on raising the quarantine prematurely. The total number of animals slaughtered as diseased or exposed was 3,605 on 154 farms or premises. The total appraised value of these animals was $88,269.08, of which two-thirds has been, or is to be paid by the Federal Government, and one-third by the states. The figures for the different states are as follows: Michigan, 9 premises, 242 cattle, 23 hogs, 9 sheep, 3 goats, value $5,359; New York, 45 premises, 520 cattle, 246 hogs, 214 sheep, value $24,378.13; Pennsylvania, 98 premises, 1,202 cattle, 999 hogs, 52 sheep, 4 goats, value $56,903.12; Maryland, 2 premises, 31 cattle, 60 hogs, value, $1,628.83."

The general public and the live stock interests of the country have escaped through the intelligent and vigorous handling of this scourge that would without doubt have proven a great calamity, financial and otherwise, and the REVIEW takes pleasure in commending the work of Chief Melvin, the state officials and the force of trained veterinarians for their splendid work in this great emergency, all the more so because they not only confined and held the disease under control in the sections in which the outbreaks occurred, but speedily eradicated it and thereby saved the country at large from an immense financial loss. It is another splendid demonstration of the ability of the Bureau of Animal Industry to cope with and stamp out any contagious disease outbreak that may occur in the future, and this fact should prove a source of widespread confidence to the owners of cattle as well as the live stock interests and the public in general. The Bureau went at the work promptly and drastically. There was no temporizing and the result is most gratifying.

WHERE IT WOULDN'T WORK.—His Teacher—Don't you know, Tommy, you should not let your left hand know what your right hand does?

Tommy—Yes'm, but you've just got to take both hands when you want to tie a tin can to a dog's tail.—(*Chicago Tribune.*)

ORIGINAL ARTICLES.

THE PROBLEM OF BOVINE TUBERCULOSIS CONTROL.*

By Dr. M. H. Reynolds, University of Minnesota, Experiment Station, and State Live Stock Sanitary Board.

A brief review of its historical development may perhaps prove helpful in a careful study of this great problem.

Historical.—At the beginning in each state there has been either an amateurish and premature attempt at eradication with unsatisfactory and harmful results or else there have been irregular testing of herds here and there just because owners wished to know whether their herds were sound, or because they wished to really try the tuberculin test. Such work has been fragmentary and has accomplished little of permanent value.

After a considerable period of this kind of work there has come better organization of individual state work and there have followed inspection ordinances providing for tuberculin test of dairy herds.

Following the adoption of such ordinances and the first attempts to put them in force, there has been quite uniformly a prolonged period of frantic opposition by dairymen and fearful anticipation of dire results that were sure to befall the dairy interests and the public milk supply. Most of these ordinances have led a precarious sort of existence with many ups and downs, suffering adverse court decisions and many amendments and revisions. But in the meantime the public has been gradually awakening to the fact that there were such things as clean dairies and dirty dairies and that tuberculosis of cattle was not altogether a myth but possibly a matter of serious concern. Eventually the dairymen have uniformly fallen into line, con-

*Address before Section VII. Sixth International Congress on Tuberculosis, Washington, D. C., Oct. 2, 1908.

ceding the need for this work. The intelligent consumer is by this time asking his dairyman when he had his cows tested and whether he is quite sure that they were all tested.

The miscellaneous scattered work has been gradually increasing over the state but a careful estimate will always show that but a very small percentage of the entire cattle in any large neighborhood have been tested. Purchasers of breeding cattle soon begin to inquire whether the prospective purchase has been tested or whether the owner will sell subject to test. A few herds are advertised guaranteeing freedom from tuberculosis. Municipal public opinion is by this time generally supporting the idea of city work, and public opinion in general is calling rather blindly for something more general and more effective, something on a larger scale, but with a very vague idea of what that something may be.

State dairy associations and live stock breeders' associations soon begin to pass resolutions calling for the testing of breeding cattle. And the principle of reimbursement is quite firmly established.

Up to this point—and this is where we are at present in the few states which are most advanced with bovine tuberculosis—the work has not usually been conducted on any comprehensive or well organized plan that can possibly lead to eradication or to a positive control. Herds that have been tested have not been wisely retested, if at all. Stables in which testing was done have been poorly disinfected if, indeed, thorough disinfection has been attempted. Stables from which tuberculous cattle have been removed have often been commonly refilled with untested cattle.

I believe that Minnesota has done as much effective work as any other state in the union, but our work is open to this same criticism of lacking permanence and of incompleteness. We are using a large quantity of tuberculin—and testing a large number of cattle in comparison with other states. Several other states are doing a considerable amount of tuberculin work, but

as the small boy expresses it, we are not getting anywhere. There is no finality about it. We are not getting to the end of the road.

Public sentiment in Minnesota, and perhaps in Wisconsin, Pennsylvania and other states is nearly or quite ready for some important development. There is no very clear idea as to what that development may be, for there are two things lacking, *first,* a comprehensive plan that has in it the possibility of an actual working out, and *second,* provision for financial support.

We have passed through a long period of preliminary training for the public and for those in charge of the work and several states are nearly ready for something different and better. The question is what that something may be. Before taking up this question as a problem to be solved let us see what individual states are already doing.

A Study of Individual States.

From the list of states that have been doing serious work with bovine tuberculosis I have selected Minnesota, Pennsylvania, Wisconsin, and Massachusetts because these are pioneers. Their present laws and methods are outgrowths of years of experience. A study of these four will bring out all the important features and methods used in the United States.

The statements made under this heading are based upon the most recent and reliable authority which the author was able to secure. It may be that some states whose work is here discussed may have changed their procedure by the enactment of new legislation or otherwise, and hence possible errors in the present discussion are apparently unavoidable.

Wisconsin.

The Sanitary Machine.—Wisconsin has placed her veterinary sanitary work with a live stock sanitary board consisting of three members of the State Board of Agriculture, the experiment station bacteriologist, and the State Veterinarian. The state veterinarian is appointed by the governor.

Board members serve without salary but are paid three dollars a day and expenses when in service. To this board is given the duty of protecting the health of domestic animals, especially against the serious infectious diseases. It has the usual authority to quarantine, kill, make regulations, and so forth.

This state has been making a special feature of public demonstration and educational work. Such demonstrations are frequietly held at the agricultural college and at farmers' gatherings over the state. The Wisconsin station has also published a number of valuable bulletins on the subject of bovine tuberculosis.

Distribution of Tuberculin.—An interesting feature of the Wisconsin work and one which the writer has been watching with some curiosity has been the general distribution of Bureau tuberculin to parties making application. The Wisconsin experiment station in connection with the sanitary board furnishes tuberculin freely and gives instructions for testing to their agricultural students, short course students and others, and these are encouraged to do general testing.

Satisfactory information has not been obtained concerning the practical working of this method; but it seems quite certain that a state can hardly continue long to pay directly or indirectly, indemnity to owners on test so made, even though the records may be reviewed by the State Veterinarian's office.

An official statement published in 1908 gives figures for total tuberculin work. This report shows for the year 1905-6, 9,718 cattle tested, 17.7 per cent. reacting, and for 1906-07, 15,816 cattle tested, 8.1 per cent. reactions. During the year 1907-08, 40,993 cattle were tested with 5.6 per cent. reactions—a total of 66,527 with 8 per cent. of reactions. The total number of cattle tested in Wisconsin by veterinarians for the state during the year 1907-08 is 13,791. As there were a total of nearly 41,000 cattle tested in Wisconsin during the year there must have been about 27,000 unofficial tests by others using Bureau tuberculin furnished by the Experiment station. It is

thus seen that approximately two-thirds of the testing done in Wisconsin during the past year has been done by farmers' short course students, dairy course students at the agricultural college, and farmers in general.

Tuberculous Cattle.—The owner of condemned cattle is granted an option (1) of retaining animals under quarantine, or (2) he may ship them to an abattoir for slaughter under Federal inspection. In case he chooses the latter procedure, the owner receives the returns from carcass sale and has no further claim against the state. (3) If the owner does not choose either of these methods and the board deems it expedient to slaughter, the owner receives written notice. After a certain procedure, appraisal is had. The amount of appraisal is based upon the value of cattle in conditions as found, the limit being $50. The board may then order such diseased animals shipped for killing to some point where federal inspection may be had.

It is ordered that the owner shall receive no compensation until the board is satisfied with the disinfection given the infected premises.

Wisconsin pays two-thirds of the appraisal, the amount to be expended not being limited. Assuming that the $60,000 officially reported as paid for condemned cattle during 1907-08 was for the total 2,334 reactions, we have a showing of $25.70 per head paid owners or $25,700 per thousand cattle for reimbursement. The state receives for carcasses $7,250 per thousand. Net reimbursement in Wisconsin was, therefore, $18,450 per thousand.

A statement of the expense of office management in the experiment station's part of this work indicates a cost of $103.75 per thousand cattle tested.

Results.—The census for 1900 gives the total cattle for Wisconsin as 2,314,000. From the best official information, Minnesota cattle have increased approximately 60 per cent. during the same interval, so that 40 per cent. is probably a conservative estimate for Wisconsin. On this basis the present cattle of Wisconsin would number about 3,240,000.

For a study of the amount of eradication work being done by the states that are leading in this work, suppose we take Wisconsin with her 3,240,000 cattle—not as a criticism, nor even as a special study, of Wisconsin; but as a general study. Nor does this study of Wisconsin work, or that of the other states here especially considered, take into consideration the splendid and absolutely necessary work in these and other states in the way of educating and arousing public sentiment. At the rate of testing done this year including the unofficial tests (two-thirds of the total) we have about 41,000 the highest record for one year. By process of simple division we find that about 80 years would be required to test once all the cattle in the state and one test accomplishes very little toward eradication.

Supposing that the plan of complete eradication is not undertaken and Wisconsin should attempt to test only her breeding herds and her dairy cattle. A Wisconsin official connected with this work estimates that there are at least 1,200,000 dairy cows in the state to-day. It would be foolish to test only the cows in any stable, so that it will be quite safe to bring the dairy herds up to 1,400,000. This, plus 64,800 pure breds, gives us 1,464,800 cattle to be tested including only the classes of cattle that are the worst and most immediate sources of dissemination. Testing 41,000 per year would require 35 years to test once these most serious sources of immediate danger.

I wish to repeat here, and very clearly, that these statements are not made in an unkind spirit or to belittle the work. Wisconsin deserves generous recognition as one of the pioneers in this field and for a large amount of work done as compared with the majority of other states.

Massachusetts.

Sanitary Machine.—In this state, authority for dealing with infectious disease of domestic animals is vested in a cattle bureau consisting of one individual, the chief. This bureau works in close connection with local boards of health through inspectors appointed by the local boards, and approved by the chief. The

Massachusetts law places the first responsibility for examinations, which are physical, upon these local inspectors. These inspectors are not trained veterinarians, but laymen.

Work and Method.—Tuberculin test work is divided into three classes:

(*a*) Examining cattle quarantined by local inspectors or reported by owners as suspected. These cattle are examined by proper agents who destroy or advise release of quarantine.

(*b*) Quarantine work and tuberculin testing with imported cattle.

During the year ending November 30, 1907, there was done under division "a" the following work:

There were quarantined 2,985 cattle. Of these 723 were released; 1,478 were condemned, killed, and paid for. Number condemned, killed, and in process of settlement, or otherwise disposed of 401. Of this item there were 10 killed with no post-mortem lesions found.

Work under class "*b*" for this same year shows that the cattle imported at Brighton numbered 84,677. Of these there were tested 14,480, the remainder being presumably cattle belonging to classes not subject to importation test. Of the tested, 169 were condemned and 49 others were killed on permit. There were released 14,262. In addition to these records for Brighton, official report shows that there were 7,238 additional cattle brought in for dairy and breeding purposes of which about one-third were tested before shipment and the remainder after arrival.

Massachusetts is doing a very large amount of herd inspection, the tuberculin test not being commonly used on Massachusetts cattle. The 8th semi-annual report, January, 1906, gives the total for the year of 32,760 herds inspected; total animals inspected 230,140, including 143,300 milk cows. I did not find a statement as to the number of animals so condemned; but very low pay is given these lay inspectors, in some of the smaller towns, $15 to $20 per year, hence it is hardly conceivable that

these inspectors are doing efficient work even in the way of physical examination.

Tuberculin test is imposed for imported dairy and breeding cattle. Beef cattle for slaughter, calves under six months of age and export cattle are exempt from test. Some testing is done for owners upon applications.

Expenditures.—The following items are given in round numbers and for the year ending November, 1906. The total available for all veterinary control work was $95,854. In this there is included $18,854, balance of a special appropriation for deficiency in 1905 accounts and appropriations for 1907 work $77,000. Of this total there was expended $89,337. There were unpaid balances and accounts at the end of the year sufficient to leave a deficit of nearly $3,500. These funds were expended in part as follows:

(1) Total salaries $20,232, excluding special agents and expenses for glanders work.

(2) Employees expenses, $9,896.

(3) Paid for condemned cattle, $42,326.

Some portion, probably small, of items 1 and 2 should evidently be charged to glanders and other live stock sanitary board work. The office expenses including salaries of chief, clerks, and assistants, and miscellaneous office expense amount to $6,960.

The officer in charge has estimated for the year ending 1908 for $77,000 to cover all veterinary control work. $7,000 of this is for office salaries and expenses and $70,000 for general outside work. The maximum allowance for tuberculous cattle is $40; average for several years is something less than $21.

Results.—The chief's personal estimate of results is to the effect that inasmuch as Massachusetts is killing a few more on physical examination each year there is probably being accomplished but little in the way of decreasing prevalence; and that they are simply killing cattle that are of special menace to human health.

Pennsylvania.

Organization.—Pennsylvania has a state live stock sanitary board consisting of the governor, secretary of agriculture, dairy and food commissioner, and state veterinarian. The state veterinarian is *ex-officio* a member and presumably executive officer of the sanitary board and at the same time reports as state veterinarian to the secretary of agriculture, which makes this organization somewhat confusing to an outsider.

Apparently the arrangement is to the effect that control work with infectious diseases which involve the community as a whole, and dealings with owners of such diseased stock and with owners whose stock is not yet affected are under the sanitary board. Whereas, subjects relating to the health of animals and sanitary work in general aside from work with infectious diseases, falls upon the state veterinarian as an officer in the department of agriculture rather than upon the sanitary board. The state veterinarian apparently acts in dual capacity as executive officer for the sanitary board and as state veterinarian in the department of agriculture.

Method.—Dairy and breeding cattle are imported subject to tuberculin test at the expense of the owner.

The Pennsylvania work with tuberculosis is apparently based to a considerable extent upon the theory that owners realize the seriousness of the question and that they will gladly co-operate if fairly treated, desiring to eradicate.

If an owner wishes to have cattle tested, he makes application to the sanitary board. In order to secure this assistance, he must agree to aid in the examination; to quarantine reacting animals promptly; to disinfect stables; and to improve the stable sanitation if directed to do so.

Application for test from owners whose cattle are not known to be affected, may be granted with the owner paying the expenses of test. Official reports are to the effect that so many applications are received that they can not all be granted with present available funds. An attempt is therefore made to confine the work to the worst infected herds.

When cattle are tested under application from the owner, he must agree to retest at his own expense within eight months providing one-fourth of the original herd is found to be tuberculous. He also agrees that he will not add untested cattle to his herd thereafter.

An interesting feature of the Pennsylvania work is that when cattle are killed for beef and incidentally found tuberculous to an extent which condemns the carcass for food purposes, the carcass may then be appraised and paid for by the state at a price not exceeding $25 for the entire carcass.

When an owner has cattle inspected by a veterinarian at his own expense and finds some animals diseased, he may apply to the state for assistance in disposing of the cattle that are tuberculous and receives practically the same help in practically the same way as though cattle were tested at state expense.

When Pennsylvania cattle have reacted in the course of state work as already outlined, they may be disposed of in different ways. (1) Such cattle may be first appraised and then killed. Appraisal considers actual value and condition of the animals, the limits being $25 for grades, and $50 for registered cattle. Owners receive the full amount of appraisal which, however, must not exceed three-fourths of the actual value at time of slaughter. The owner receives the carcass salvage in addition to such appraisal and the cattle are killed under inspection. (2) Reacting non-clinical cattle may be retained under certain restrictions presumably for use according to the Bang system. It is stated that owners rarely use this permission.

An interesting provision is made for co-operation between the sanitary board and municipal authorities. When a municipality arranges for tuberculin test of herds supplying city trade, the state board is permitted to bear one-half the cost of such work in case of herds kept beyond jurisdiction limits of the local board of health.

Amount of Tuberculin Work Done.—Pennsylvania uses tuberculin made in her own sanitary board laboratory. During

the year 1905 there were distributed about 20,230 c.c. of tuberculin. The laboratory sent out 19,880 c. c. of tuberculin in 1906. We will estimate that this was all used, which would be a very generous estimate for Minnesota. The dose of this varied from 0.25 to 0.4 c. c. Estimating an average dose at .33 c. c. there were probably about 60,000 cattle actually tested. The writer was unable to find an accurate statement on this point in the official reports.

For this fiscal year, 1905, the board had available a total of $45,000 for general control work. Of this amount there was expended for reimbursing owners and inspecting cattle for tuberculosis about $29,500. For the year 1905 with the same total appropriation available for control work, the state spent $27,230 for reimbursement and inspection work in connection with this disease. For the year 1904 the sanitary board had available for work $45,000, of which there was spent $31,766 for reimbursement of owners and expense of inspections. During the year 1905 there were condemned 1,352 cattle from 773 herds inspected. During the year 1906 there were condemned 1,536 cattle from 858 herds inspected.

Please bear in mind that we are not now studying results accomplished in the way of public education and enlistment of public support. These studies of methods and results in the four states selected are presented that we may have a clear view of the amount of field work done with cattle and stables. A further purpose is to show the need for comprehensive plans and large appropriations, and cold figures are more reliable than rhetoric as guides for judgment.

Results.—The census of 1900 gives a total of 2,000,000 cattle, of which there are 1,062,000 dairy cows over two years of age, and an estimated 40,000 pure bred cattle, or a total of 1,102,000.

We have estimated the total number of Pennsylvania cattle tested during 1906 at 60,000. Tests of recently imported cattle should not be included in this estimate. This number tested

when compared with the total number of cattle in the state about 2,000,000 indicates that 33 years would be required at this rate for testing all cattle in the state; or on a basis of 1,022,000 dairy cows and an estimated 40,000 pure bred cattle or a total of 1,062,000 dairy and pure bred cattle to be tested there would be required for these classes at this rate of testing 17 years for one test of each herd. One test, even though followed by disinfection, accomplishes comparatively little in the way of eradication. It will, therefore, be seen that Pennsylvania, one of the leaders in this work in the United States, is like other states really accomplishing very little in the way of eradication or actual control.

Minnesota.

The Machine.—Sanitary control work in Minnesota is in charge of a live stock sanitary board consisting of five members appointed by the governor. Three members must be financially interested in the maintenance of live stock, and two members must be veterinarians, graduates of recognized colleges. The secretary and executive officer as well as field veterinarians and other assistants are employed by the board without any political oversight. It is provided by law that the secretary must be a graduate from a reputable veterinary college. One board membership becomes vacant each year. Board members receive no compensation except actual traveling expenses.

This board meets quarterly for consideration of work accomplished, to plan future work, and consider proposed regulations. The secretary is an executive officer carrying out plans of the board and provisions of the law. The legal basis for this work and powers bestowed upon this board are very broad so that the board should rarely or never be hampered by lack of authority to a given work. Apparently the only probable source of failure in a board so organized must lie in sheer incompetence of board members. Thus far there has been described only the central control power of a great machine, for which this state board there is intimately associated by law

2,500 local boards of health and health officers who have certain prescribed responsibilities in connection with this state work and who are subservient to the state board.

Features of the Law.—It is the legal duty under penalty for anyone who knows of or suspects existence of any infectious disease to report this to his local health officer and he within 24 hours to the state board. In case of animals to be killed the owner is given all reasonable protection in the way of protest, appraisal, reimbursement, etc., but the protest does not delay killing.

For veterinary control work Minnesota uses, and we much prefer, the plan of employing field veterinarians on full time and for the exclusive service of the board. This plan is chosen rather than that of deputy or local state veterinarians who are engaged in private practice and frequently embarrassed in performance of state duty by reason of private practice jeopardized, and by lack of special training and large field experience. There are many reasons which the writer believes to be good, which may be advanced in support of this plan.

Minnesota forbids importation of cattle for dairy or breeding purposes except under tuberculin test. The penalty for violation of this is quite severe, being not less than $500 nor more than $1,000 or imprisonment for not more than one year.

Minnesota has had for years a law which provides for the pasteurization of creamery skimmed milk. Sour milk has proved a very serious source of dissemination for other states that have no such legislation.

Disinfection and Refilling.—It is expressly ordered by regulations that when cattle are tested and diseased animals are removed and paid for, the owner must disinfect the stables in a prescribed manner and must not put any untested cattle into such stables. Violation of this regulation forfeits claim for future reimbursement.

Method with Tuberculosis.—The general plan with tuberculosis is as follows:

Testing may be done by certain veterinary representatives of a state or local boards or by any graduate veterinarian recognized by the state board for this work. When reacting cattle are found, such cattle are appraised on the owner's premises. They are then shipped to some convenient point within the state where there is federal inspection and are there killed under such inspection. If no tuberculosis is found, the owner receives full appraisal, which must not exceed $75 for registered cattle or $35 for grades. Carcasses are disposed of to the best possible advantage and the carcass returns or salvage goes directly to the owner, who is paid in addition by the state three-quarters of the difference between appraisal and carcass salvage.

A large amount of tuberculin test work has been done in Minnesota and a large number of tuberculous cattle have been disposed of—large numbers when we consider them in the abstract or compare with other states, but very small as will be shown later in proportion to the total amount of work to be done. The actual amount of work done together with a study of the results, expenses, returns, etc., is presented in the following table:

Tuberculin Work for the Year Ending August 1, 1908.—*Registered cattle,* tested 1,329; number of reactions 490 or 36.8 per cent.

Number of reacting animals killed 428; number of carcasses passed 199 or 47 per cent.; number of carcasses condemned 229 or 53 per cent.

Appraised value of 428 cattle $27,770.50; average about $64.

Carcass returns $5,296; average $13.37.

Owners received from the state in addition to carcass returns $16,795; average $39.20 per head.

For all registered cattle appraised in addition to this, the state spent for freight and yardage $666.

The total net cost to the state for reimbursement, freight, yardage, etc., was $17,460; or average for all killed $40.80.

Grade cattle, number tested, 25,887; reacted, 2,000, or 7.7 per cent.; number killed, 1,941; of these there were inspected 1,797; carcasses passed 851, or about 47.3 per cent. of carcasses inspected; carcasses condemned 946, about 52.7 per cent. of carcasses inspected.

Killed without appraisal 144.

Killed with no lesions found on inspection, 52 animals, about 2.7 per cent. of killed.

Total appraisals $51,027; average $26.23.

Total carcasses returns $17,054; average carcass salvage $8.79.

Paid owners in addition to carcass returns including full appraisal for the 52 animals about $25,820.

Freight and yardage $1,784.85.

The total expense to the state for reimbursement, freight, and yardage for grade cattle was $27,605, averaging for all grades killed $14.20. Note that this total cost to the state is the merest trifle over $1 per head for all grade cattle tested.

The average percentage of reactions for animals tested regardless of breed was 9.3 per cent.

Dr. Melvin has recently reported records of 400,000 tests made during the past 15 years in various portions of the United States and by various authorities. This shows 9.25 per cent. reactions, the average for all breeds and conditions represented. Note two points: (1) the close agreement with the Minnesota average for the past year 9.3 per cent. for all classes.

(2) That only 400,000 recognized tests seem to have accumulated in the past 15 years in the United States. Minnesota alone has about 3,000,000 cattle.

It is estimated that 41 per cent. each of the office salaries and expense; field veterinarian salaries; laboratory expense and 30 per cent. of total travelling expenses may be charged to tuberculosis work under the present Minnesota plan.

Study of Minnesota work shows the following summarized data for the cost of such work:

Cost of office work per thousand tested $70.20.

Total cost to the state for tuberculosis work per thousand *registered* cattle tested; reimbursement, freight, and yardage $13,137.

Net cost to the state per thousand *grades* tested for reimbursement, freight, and yardage $1,067.

Appraisal per thousand registered cattle $63,940.

Appraisal per thousand grade cattle $26,230.

Carcass salvage per thousand registered cattle $13,370.

Carcass salvage per thousand grade cattle $8,790.

Net cost to the state for reimbursement per thousand registered cattle tested, paying three-quarters of the difference between appraisal and carcass salvage, $12,637.

Net cost to the state for reimbursement per thousand grade cattle tested, paying three-quarters of the difference between appraisal and carcass salvage, $997. Note the relatively great expensiveness of this work with registered cattle.

Financial Statement.—Minnesota during the present bi-ennium has available $130,000 exclusively for work with tuberculosis and glanders. As before stated, it is estimated that 41 per cent. of the total office and field veterinarians' salaries may be charged to tuberculosis and 30 per cent. of the total travelling expenses. The sums paid in reimbursement for tuberculous cattle during the past year have already been given.

Results and Present Situation.—It is stated on good authority that there is not an untested herd of pure bred dairy cattle in the state. A considerable proportion of the other breeding herds are reported as tested one or more times. We have 12 cities with tuberculin test ordinances in effect or which will very soon be in operation.

Our cattle breeders are becoming very cautious about buying untested cattle. The state dairy association at several annual meetings during the last few years has endorsed the tuberculin test without a dissenting voice and called upon the legis-

lature for legal provision whereby stock sold for breeding purposes must be sold with tuberculin test or subject to test.

Of the special features of Minnesota's law and methods there may be summarized the following:

There is a peculiar organization of the sanitary board, previously described. There is a fairly comfortable financial situation with $130,000 for the last bi-ennium exclusively for glanders and tuberculosis, $172,000 for all work for the board.

There is a close organization of local health officers and township supervisors with the central board. There is concentration of energies and funds on dairy and creamery herds, and pure bred cattle, the most serious factors in disseminating the disease among other cattle and most threatening to people.

A hasty survey of the figures for work in Minnesota as in other of the few states that are doing considerable work with tuberculosis gives the impression that the state is doing a great work, and so it is, when we consider that as such problems and movements go, this work is young. But when we consider work already accomplished or that can possibly be accomplished by our present methods and funds in the light of the entire problem the amount of work done in Minnesota is trivial. To illustrate this, let me suggest that we have a total of nearly 3,000,000 cattle in the state of which there are 590,000 creamery and city dairy cows and about 60,000 pure bred cattle. In these classes alone the most serious classes, we have 650,000 cattle.

At the present rate of 27,216 cattle tested officially last year it would require about 24 years to test the dairy and breeding herds alone or 111 years to test all the cattle in the state. Testing infected herds at intervals of five years or even two years for instance would accomplish very little toward eradication, as every experienced veterinary sanitarian well knows. Testing only these most important classes of cattle once in 24 years is accomplishing nothing so far as eradication or effective control work is concerned. We are simply removing a small proportion of the infected cattle capable of disseminating infection.

Think of the 142,000 farm cattle barns in Minnesota and 3,650 other barns containing cattle in the state, any of which are possible sources of infection, and worst of all, we do not know which herds and which stables are disseminating this infection.

Gathered from Study of Individual States.

There appears to be very much to criticise in the best work of the best states so far as actual results are concerned, and many things worthy of praise in the poorest—if we consider age of the work, time, conditions and opportunities. This study of individual states forces certain conclusions:

It is apparent that the most important among results thus far actually accomplished toward efficient control of bovine tuberculosis has been in the way of public education and the enlistment of a favorable opinion.

(1) The work with cattle and stables is fragmentary, unsystematic, and accomplishing little in the way of permanent results, but is perhaps the best that could be reasonably expected up to this time.

(2) The best field work being done leaves untested and unprotected a large proportion of the most important classes of cattle and a large amount of testing is being done with herds capable of doing little harm.

(3) Available appropriations are very small if we consider human lives and live stock interests to be protected.

It should be remembered in considering justification for large appropriations that the live stock interests are not the only ones involved in live stock sanitary work, even if we consider only the financial side of the problem and ignore the question of human health.

The writer recently heard a large wholesale merchant state in public that jobbers always feel safe in extending large credits to merchants in farming districts where there was plenty of live stock. When we are protecting live stock interests we are protecting to a very important extent the entire commerce of the state or nation.

(4) In order that generous appropriations may be had, it is absolutely necessary that the live stock sanitary control work should be efficient and should be managed with the most scrupulous economy and honesty and fair treatment so as to gain and retain the confidence and support of the stock owner and influential public in general.

(5) In order to plan work on a large scale and get results, appropriations must be more stable. A standing annual appropriation upon which a board may depend is to be preferred over larger but uncertain appropriations. This great sanitary problem can never be solved by any temporary measure. Work of permanent value must extend through a term of years. This problem will never be solved in any satisfactory way until it is possible to plan work for years in advance and with the understanding that plans may be carried out.

(6) Tuberculin test work which may entitle the owner to reimbursement should be done by veterinarians and their returns accompanied by an affidavit showing definitely just how the test was made and who did it. The sanitary authorities should have a rigid rule concerning tuberculin test that will be accepted and that rule must be enforced even though in some cases features of the rule may appear to be useless and unnecessarily troublesome.

States doing serious work with tuberculosis have had quite enough trouble with tuberculin tests done by veterinarians who know how the work should be done. It does not appear wise to extend this trouble by throwing such work wide open to students and farmers in general with the state to pay for cattle condemned on such basis even though some veterinary officer does look over the test records.

(7) The writer is convinced after this study of the work of individual states that the ideal state organization for this control work consists of a board of about five members, a majority of whom should be ex-officio. The secretary and executive officer should be a graduate veterinarian and employed by

the board from outside its membership. The board should be composed of veterinarians and prominent owners of live stock. The members should serve without compensation or opportunity for remunerative employment by the board. The veterinarians and live stock memberships in their influence on the board and considering the secretary, should be fairly balanced. I would not have such a board composed exclusively of either veterinarians or live stock men.

This board should be in close organization with all local health officers and boards of township supervisors of the state.

Professional politicians should be entirely eliminated, which is not difficult. This board must have ample authority and should be closely organized in connection with all of the local health officers and township supervisors of the state. Its appropriations must be large and stable.

Eradication.

We frequently hear intelligent people say that all this tuberculosis work is wrong. They say: "You must test all the cattle in the state and eradicate the disease, and that is the only businesslike thing to do." Sweeping plans have been proposed for eradication; but those who propose them do not appear to have had a close view of the great difficulties in the way of actually carrying out such propositions.

The problem of tuberculosis eradication is a very different one from the federal pleuro-pneumonia work of some years ago which cost only the mere trifle of $1,500,000 and five years' time and involved but six states.

The eradication of foot and mouth disease cost less than $300,000, including about $129,000 indemnity paid to owners of cattle. Those tasks were but as child's play and relatively trivial in expense as compared with the work of eradicating tuberculosis from the United States. These two sums com-

bined would be small in comparison with the cost of eradicating tuberculosis from Minnesota or Wisconsin, or Pennsylvania, or any one of a large number of states.

It is easy enough to insist on complete eradication and say away with tuberculosis, but when one familiar with this class of work sits down to figure, he is appalled by the way figures run into the millions. And even if an unlimited amount of money were available there are other and almost insurmountable difficulties in the way of complete, rapid eradication under present conditions. To illustrate this the writer will present a careful estimate as to the expense of so eradicating tuberculosis from a single state. Let us use Minnesota for a study of the general problem—and as a national problem.

Basis of Calculations.—Calculations are based on the following standards:

Testing all cattle in the state twice a year for two years and annually for the next five years; stable disinfection after each test; reimbursement to owners of one-half appraisal—owner to receive in addition the carcass salvage.

The appraisal limits are $75 for pure breds, $35 for grades; average appraisal for pure breds $60, and $26.25 for other cattle; average carcass salvage for registered cattle $13.37; other cattle $8.79.

There are about 2,993,600 cattle in the state of Minnesota. Two per cent. of these or 59,872 are estimated for pure breds; total dairy cows over two years of age 590,728.

Our Minnesota records show about 37 per cent. of reactions for pure breds, other cattle 7.7 per cent. For this present computation the pure breds are placed at 15 per cent. reactions, dairy and creamery cows at 4 per cent., other cattle 3 per cent. for the first test and all classes at .75 per cent. reactions for subsequent tests. Pure bred cattle are valued at an average of $60; creamery and dairy cows at $35; other cattle at $20.

Expense of office management for the past year in Minnesota during which 27,216 cattle were tested officially, was about $70.20 per thousand tested. Of this $70, $34 was for clerical work and general office expenses. This item would continue nearly a level rate even when dealing with very large numbers of tests. The other item of $36 for executive salary would not increase with the amount of work, but would practically disappear as insignificant in the general rate per thousand. $35 per thousand tests is therefore used as the rate for expense of office management. The best available figures for neighboring states is $103 per thousand.

Average cost of disinfection per barn $13 and the barns averaged is 1900 according to census, 13 cattle each.

Cost of test is based on the following:

Veterinarians employed on full time for testing are put at $1,200; helpers $600. Each pair (one helper and one veterinarian) is allowed to keep one horse at state expense, which is estimated at $150 per year per horse; aside from this, they pay their own expenses. Each pair is to make three tests per week, averaging in all sections of the state 25 animals per test or 75 per week. Enough veterinarians are to be employed for the first two years to test all cattle in the state once in six months. The number of cattle is supposed to remain stationary. After the first two years, one-half as many veterinarians are employed so as to test annually.

Objection to these calculations may be raised on the ground that it would be unnecessary to test all herds semi-annually for the first two years. True, there would be a rather large percentage of herds showing no reactions on the first general test. But we have no reliable basis upon which to estimate this percentage. If we could make this correction but one item in the following list "cost of testing" would be varied, and the general conclusions would not be affected in the slightest degree.

Computing on these basis we obtain the following startling figures as to losses expenses of an active and reasonably thorough eradication work:

Total Value of All Reacting Cattle.

For the first year	$3,289,502 00
For the first two years	4,527,172 00
For the seven years	7,121,847 00

Total Net Loss to the Cattle Interests of the State, i. e., *Valuation of All Condemned Cattle Less the Carcass Salvage.*

For the first year	$1,968,430 00
For the first two years	2,492,283 00
For the seven years	3,931,844 00

Net Loss to Owners for All Classes of Cattle.

During the first year	$965,204 03
During the second year	1,264,988 71
During the seven years	2,014,447 92

Cost to the State (Reimbursement), All Classes of Cattle.

For the first year	$650,897 23
For the first two years	898,021 51
For the seven years	1,515,831 21

On the basis previously given the cost of testing all classes of cattle by veterinarians and helpers would amount:

For the first year	$1,893,450 00
For the first two years	3,786,900 00
For the seven years	8,520,525 00

Suppose it is held that this required number of veterinarians is not available, which is quite true, or that it is unnecessary to employ such expensive men to do the work. By employing farm school students, dairy school students, farmers' short course students and others, which procedure experienced sani-

tarians would hardly approve, we find that the cost of testing all cattle as before would be:

For the first year	$2,019,666 00
For the first two years	4,039,332 00
For the seven years	9,088,497 00

Cost of Disinfecting All Stables.

For the first year	$4,686,000 00
For the first two years	9,372,000 00
For the seven years	21,087,000 00

Cost of Office Management at $34.00 per Thousand Tests.

For the first year testing all cattle	$203,564 00
For the first two years	407,128 00
For the seven years	916,038 00

Amount of Tuberculin Used B. A. I. Standard for All Cattle.

During the first year 11,974 litres, or approximately 2,994 gallons.

During the first two years 23,949 litres, or approximately 5,987 gallons.

Total for the seven years 54,885 litres, or approximately 13,471 gallons.

During the past year the government distributed a total of 259,100 c. c. tuberculin, which cost the government to produce about $10 per litre.

To test all the cattle in Minnesota alone on this plan for the first year would require 46 times this entire federal output.

The cost of producing tuberculin needed on this plan would be:

During the first year	$119,740 00
For the first two years	239,490 00
For the next five years	299,350 00
Total for the seven years	538,840 00

Total expense for veterinary services, disinfection, reimbursement, office management, and including the cost of producing tuberculin which could perhaps be produced by the state at about the same expense as by the government:

For the first year	$7,553,650 00
For the first two years	14,703,540 00
For the seven years	35,004,260 00

The total value of all Minnesota cattle in 1900 was $37,197,198. The present value of Minnesota cattle is probably about $50,000,000. These figures give a careful estimate as to the actual cost of rapidly eradicating tuberculosis from one state.

The total annual expenditures for all purposes by this state amount to about $6,500,000. Eradication work on this basis during the first year would require considerably more than the entire available resources of the state that year. Can there be any question concerning the hopeless impossibility of rapid eradication under present conditions and with present available agencies? Nor may we reasonably expect complete eradication in the near future. But if absolute eradication, which would be ideal, is unattainable, is it not the part of wisdom to content ourselves with the best work that may be within the limits of reasonable possibilities?

Eventually there will come a time when public sentiment will support thorough and careful work and when sufficient funds may be secured to carry on large work. We may yet have a cheap, safe and efficient vaccine and when other aids unknown at present may then be available. But we must not wait for public sentiment and other conditions to be entirely favorable before making a beginning. The progressive sanitarian must always work somewhat in advance of public sentiment, meanwhile doing his part toward a wise development of public information along intelligently progressive lines.

Solid Ground in Sight.—Thoughtful students of this problem are beginning to ask the question "What next?"

Those engaged in this work have been wading through an unknown slough for something like fifteen years and we are beginning to feel that we have found some spots of good firm ground. There have been developed certain general principles upon which we may base future work.

So far as we can see now, it is evident that comprehensive plans for dealing with the bovine tuberculosis problem must be based upon tuberculin test.

Tuberculin is firmly established as a reasonably accurate diagnostic.

Tuberculosis is now recognized as a serious menace to human health and as an actual source of danger and a constant threat to livestock financial interests.

It is well established that this is not a disease of breed or type, and we are probably well acquired with the sources and methods of spread.

The principle of indemnity is apparently established as a necessary preliminary procedure.

It is clearly established that one tuberculin test and one disinfection can not be depended on to eradicate tuberculosis from an individual stable and we must plan with this in view when attempting to do thorough work. The classes of cattle which are most actively spreading the infection should be tested first and this means city dairy cattle, creamery herds and pure bred herds.

The first retest of reacting herds should be given in about six months and there should be preferably semi-annual tests for the first two years and thereafter annual test as needed.

There must be adequate disinfection after each test where reacting animals are found.

Stables must be refilled with tested cattle only, or the owner should forfeit his right to future indemnity. There must be used some reliable system of marking that will obviate the probability of fraud.

It is quite clear also that we must have the co-operation of owners and the support of public opinion before anything effective can be accomplished. On the other hand, it will not do to wait for this before making an active start in the work.

Ideal state work employs field veterinarians on full time and in exclusive service rather than deputy or assistant state veterinarians engaged in private practice.

Importation of cattle for dairy and breeding purposes to a state that is undertaking any serious tuberculosis work should be only under the guarantee of a competent tuberculin test.

We must take up the most serious and urgent problem in order and the work must continue to be something of an evolution.

A Proposition for Control Work.

After a careful study of this problem extending over quite a period, the writer is disposed to suggest a program for dealing with the problem of bovine tuberculosis control.

It is unquestionably desirable to locate by tagging or otherwise and deal only with infected herds, but the practical possibility of this on the needed scale has not been demonstrated. There are very difficult problems and complicated details yet to be worked out.

Assuming that a state has a good law and an effective sanitary machine, both having the qualities and features already outlined, I submit the following to be taken up in the order given:

(1) In the early history of control work with tuberculosis all resources of energy and money should be concentrated as closely as possible upon importations, dairy and creamery herds, and pure bred herds. Whenever public sentiment and available funds may justify more thorough work, there should be undertaken what may be as nearly as possible eradication of tuberculosis from these three classes of cattle.

(2) The first compulsory testing should be of all herds from which milk is offered for sale in the cities, towns, or villages.

With suitable provision for retesting, refilling with sound cattle, and proper disinfection of the stable.

(3) All cattle sold for breeding purposes should be sold with certificates of test or subject to test under such wording of the law as will protect the purchaser against fraud. Compulsory test of all cattle in breeding herds would, of course, be preferable, but there might be question whether it is feasible to force the test for breeding cattle not actually on sale and so long as the cattle remain in the present owner's herd.

(4) Compulsory testing of all creamery herds may come third providing the state has effective provision for pasteurizing creamery skim milk. This should imply suitable retesting, refilling and disinfection.

(5) Cattle imported for dairy or breeding purposes must come in with satisfactory certificate of test forwarded to the secretary of the sanitary board or cattle should be held at the first suitable point within the state for testing. Testing imported cattle should be done at the owners expense and every possible precaution taken to avoid fraud.

Heavy fines must be imposed upon violators of this provision and the penalty should fall upon either or both the owner and transportation company.

(6) All official testing should be done by veterinarians who are definitely listed and recognized by the sanitary authorities.

The sanitary authorities should define fully and in detail just what constitutes a tuberculin test which will be accepted and every test record should be accompanied by an affidavit from the one who signs the test records; which affidavit should specify just what and how much the affiant did in connection with the test.

Financial Statement.

A series of computations have been made in order that we may have a clear view of the probable cost of eradication from city dairy, creamery, and pure bred herds. Knowing approximately the cost, we may more intelligently consider the feasibil-

ity of undertaking the work, let it be clearly understood that the following is offered as so much data, so much information that may be useful, and not as work and expense which states are now advised to undertake.

The bases for calculation are the same as for those previously used in studying the possibility of complete eradication.

VALUE OF REACTING CATTLE IN THESE CLASSES.

City Dairy and Creamery.

First year	$982,065 00
First two years	1,292,165 00
For seven years	2,067,415 00

Pure Breds.

First year	$639,882 00
First two years	1,041,950 00
For seven years	1,547,120 00

Total for Both Classes.

First year	$1,621,947 00
First two years	2,334,115 00
For seven years	3,614,535 00

TOTAL NET LOSS TO CATTLE INTERESTS OF THE STATE.

(Total healthy value of condemned cattle minus carcass salvage.)

CREAMERY AND CITY DAIRY.

First year	$660,670 00
First two years	738,557 00
For seven years	933,276 00

Pure Bred Cattle.

First year	$519,808 00
First two years	571,789 00
For seven years	831,693 00

Total of Both Classes.

First year	$1,180,478 00
First two years	1,310,346 00
For seven years	1,764,969 00

NET LOSS TO OWNERS.

Pure Bred Cattle.

First year	$219,667 88
First two years	240,588 63
For seven years	292,890 50

Creamery and City Dairy.

First year	$227,895 66
First two years	299,704 80
For seven years	497,222 65

Total of Both Classes.

First year	$447,563 54
First two years	540,293 43
For seven years	772,113 15

NET COST TO STATE FOR REIMBURSEMENT.

Pure Bred Cattle.

First year	$209,387 00
First two years	230,326 00
For seven years	282,672 00

Creamery and City Dairy Herds.

First year	$176,282 00
First two years	242,388 00
For seven years	407,652 00

Total of Both Classes.

First year	$385,669 00
First two years	472,714 00
For seven years	690,324 00

Cost of Testing.

Cost of Testing by Veterinarians—Creamery, City Dairy, and Pure Breds.

First year	$650,175 00
First two years	1,300,350 00
For seven years	2,925,787 00

The number of veterinarians required for the first two years would be 333 and for the next five years 167.

If it is argued that there are not enough veterinarians available for this work at the proposed salary and that the work could be done by graduates of agricultural colleges, short course students, dairy course students, etc., then the calculation and testing would be as follows. The author would not approve of this method; but will submit the calculation.

Cost of Testing Creamery, City Herds and Pure Breds.

First year	$550,150 00
First two years	1,100,300 00
For seven years	2,475,675 00

Cost of Disinfecting Stables.

This is on the basis of 50,000 barns for city dairy, creamery, and pure bred herds which is very nearly correct for Minnesota.

First year	$650,000 00
First two years	1,300,000 00
For seven years	2,925,000 00

Cost of Office Management.

(For creamery, city dairy and pure bred cattle at 34 per thousand tests, possibly high for work on large scale.)

First year	$44,200 00
First two years	88,400 00
Seven years	198,900 00

Amount of Tuberculin Used and Cost.

Creamery, City Dairy and Pure Bred Cattle.

First year about 2,600 litres or 650 gallons, costing.	$26,000 00
First two years 5,200 litres or 1,300 gallons, costing.	52,000 00
For the seven years 11,700 litres or 2,925 gallons, costing	117,000 00

Total Cost of Eradication.

These figures indicate that the total cost of eradication in seven years on this basis and from these classes, city dairy, creamery, and pure bred herds would be as follows:

First year	$1,756,080 00
First two years	3,213,460 00
For the seven years	6,857,000 00

Data.—It is interesting to note in this connection that on this basis there is required .5 of a gallon B. A. I. tuberculin per thousand cattle, per test.

Testing by veterinarians would cost on the basis previously given very nearly $0.50 per head. Testing by farm school graduates, etc., would cost about $0.43 per head.

The cost of disinfection on the basis given amounts almost exactly to $1 for each animal tested for each disinfection.

It is possible that some more economical plan for utilizing tuberculous cattle than by slaughter and carcass salvage may be developed.

This may come with tuberculosis stock farms under private management licensed by the county or state; or possibly with tuberculosis farms managed directly by the county or state. No difference what form this plan may assume, it is safe to say that it will receive a royal welcome after it has made good, as we say in American phrase.

In order to stand test, any plan for utilizing tuberculous cattle must answer favorably to one difficult question: Is it profitable in cold dollars? Can tuberculous cattle whether mixed

grades or pure breds of many breeds, be purchased at the average price of carcass salvage and then be managed profitably in the United States, with the products honestly labelled and competing in the open market with similar products from healthy cattle?

With this question in mind the writer has been unable to formulate anything that would stand careful analysis. Neither has any method suggested by others come under observation that does not appear hopelessly impracticable. Several have suggested plans, some features of which may yet be utilized, and we may all wish earnestly that something better may appear.

In Conclusion.—It need not be argued in this connection as to whether vigorous control work on a large scale should be done by the state alone or by the state with federal aid or whether by federal authorities chiefly. Abrogation of police powers of a state involves legal questions which need not enter into this discussion. But whether this final work of eradicating tuberculosis from these three classes of cattle is to be undertaken by the state alone or by the state with generous federal aid, it is very evident that the work must be done with individual states as units.

Hitherto there has been too much theorizing and too much guessing. Students of this problem have been dealing too much with glittering generalities. It seems high time for us to develop some tried bases for more efficient work; time for statements of basic principles and quite time to outline large plans. Our owners and consumers and legislators are entitled to practical plans and prosy statements of probable cost and probable results.

Let us all—all who are directly interested in this problem and familiar with it, endeavor to work out practical methods of doing much larger and much more efficient work than we have been doing.

"Still achieving; still pursuing,
Learn to labor, and to wait."

In Prussia the price of medicine is regulated by the state, a new price list being published every year.

SHIFTING LAMENESS.*

GEORGE R. WHITE, M.D., D.V.S., NASHVILLE, TENNESSEE.

When honored by the Secretary of the American Veterinary Medical Association with an invitation to contribute to this program, by presenting a paper that would be of interest to the general practitioner, I cast around for a subject which would be of most benefit to those fellow practitioners who would do me the honor to listen to the reading of the paper, or others who might chance to read same when published either in the printed proceedings of this meeting, or in the AMERICAN VETERINARY REVIEW.

The subject which I have selected appealed to me as one of sufficient importance and interest for presentation on this occasion. In this age of modern veterinary science the study of lameness in general, and special lameness in particular, is not receiving as much attention as it very justly deserves.

Lameness may be defined as pain or stiffness manifested by weakness or soreness in one or more limbs, associated with perverted function of the limb or limbs affected. The term "shifting lameness" is self-explanatory.

From the viewpoint of the practitioner of veterinary medicine, accurate diagnosis of lameness is the most difficult; however, the most important problem with which he is called upon to contend. It is always puzzling and is indefinite in many cases. Accurate diagnosis stands essentially for two things: Accuracy of observation based upon extensive practical experience, and the basing of conclusions on facts gleaned from the actual symptoms presented, rather than assumptions or "fine-spun theories."

We view with a degree of pride the advances in our knowledge of veterinary science. This pride is in a measure justified when we compare our knowledge of to-day with that of only

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a few years ago. But we are mistaken if we assume that veterinary medicine and surgery has already attained the rank of a perfect science, for we have as yet made only a few steps in that direction. This applies to physical diagnosis in particular, which, of course, includes lameness.

Unfortunately, the knowledge of lameness by the average general practitioner has lagged far behind many other branches of veterinary science. As an example may be mentioned veterinary sanitary medicine. We, as general practitioners, must freely admit, without hesitation, that most of the gifted members of the veterinary profession have deserted our ranks and entered the field of college or experimental station work, or the domain of sanitary veterinary medicine. They have been attracted to other fields of endeavor by attractive salaries and official positions with less work and worry than is encountered by the average general practitioner.

Of course, we must all admit that the opportunities for honor and achievement are greater with the man who chooses sanitary science or experimental medicine as a profession; however, it is a great misfortune that the ranks of the general practitioner are to be depleted by some of our best and most gifted men deserting us. Their advice and counsel is needed most where the darkness is greatest.

The trained diagnostician recognizes the fact that the location of lameness is one of the most tedious and difficult problems which daily confronts him. His reserve faculties are here constantly brought into action. It is here that his skill is subjected to the severest test. It is here that a mistake in diagnosis often causes embarrassment by inviting adverse criticism and uncomplimentary comment. It is here that reputations are quickly made, and it is here that they are more quickly lost. We must ever be on our guard in diagnosing lameness. One reason for this is that we do not sufficiently train our senses to the necessary keenness of perception. We are too often insensible to the distinction between facts and fancy in our observation,

and too quick in arriving at the conclusion. There is no subject more worthy of consideration, no time more fitting, no place better suited to the act, than the discussion now before the American Veterinary Medical Association of the subject of this paper —" Shifting Lameness."

It has been correctly suggested that the diagnosis of lameness is a triple problem, viz: I, Recognition of the Affected leg; II, Location of seat of lameness; III, Determination of cause or nature of lameness.

The treatment of lameness deserves secondary consideration, as that is often simple when once a correct diagnosis has been made. Of course, the prognosis in " shifting lameness " is always indefinite, as this depends altogether upon its etiology, or we might say the systemic disease which is always its forerunner. We must bear in mind the fact that shifting lameness—exclusive, possibly, of septic arthritis in foals—is not a sign of localized soreness, but it is a pathognomonic symptom of one of the following three systemic affections: Osteoporosis, Millet Disease, Rheumatism.

The stages of lameness may be classed as acute, sub-acute, and chronic. The stage must be established or determined from the history of the case. We will now briefly consider the pathology of the lameness producing lesions, of each of the three systemic diseases in which " shifting lameness " is a prominent and well marked symptom:

Osteoporosis.

The bone and joint lesions, which produce lameness in osteoporosis, are of a gradual, slow developing character. The disease causes absorption of the calcareous or compact bone substance, which, of course, leaves the bone in an impoverished, porous and weakened condition. It also attacks the articular cartilages of the joints—most often those of the hock, stifle and hip, of the hind leg, and those of the knee and elbow of the fore-leg. The smooth, glistening surfaces of the affected joints be-

come rough and uneven, something similar to ulceration, with no pus formation. There is synovial distension and periarticular infiltration. The synovial and articular function of the joint is distorted to such an extent that the movement of the affected joint or joints causes friction, hence pain and lameness. The bones of the limbs rarely if ever become enlarged. The marrow is more vascular than normal. The synovia is thick and light brown in color and contains broken down debris from the ulcerated articular cartilages and bone. Occasionally a ligament or tendon may become detached at its insertion by tearing the periosteum from the diseased bone.

Shifting indefinite lameness, involving first one leg and then the other, is always suggestive of beginning osteoporosis. Of course, if the disease has advanced to the degree where the characteristic symmetrical swelling or thickening of the maxillary (superior and inferior) bones takes place, the diagnosis is easy. However, until the occurrence of this characteristic enlargement of the face and jaw bones the lameness from osteoporosis can easily be mistaken for that of either millet disease or rheumatism.

Millet Disease.

In millet disease the bone becomes decidedly softened; however, there is no tendency to absorption of the calcareous or compact bone substance. There is a marked tendency to detachment of the ligaments and tendons at their insertion. They frequently tear away and carry bone substance and periosteum with them. There is a well marked, or, we might say, profuse, infiltration into the joints and tendon bursae; however, the supply of true synovial fluid is in all cases considerably diminished; in fact, in many cases its secretion is entirely suppressed. In cases where the synovial fluid is scant, adhesions of important structures sometimes occur. The disease has even produced ankylosis of one or more of the important joints.

The articular surfaces of the affected joints show numerous indentations of an ulcerative or softening character; of course,

these leave the joint in a roughered condition and capable of producing friction and pain at every movement.

The kidneys present all the pathological lesions usually met with in acute and chronic nephritis.

Rheumatism.

Rheumatism is a constitutional inflammatory affection, for a long time thought to be of lactic acid origin; however, it is now considered a toxaemia as a result of bacterial development. It has a tendency to attack articulations as well as muscular tissue. In fact, it can truly be said that rheumatism is no respector of tissues. It has an acute onset and does not present peculiar or constant lesions. Although the joints are the chief seats of invasion, still in many instances, and even in aggravated cases, the pathological changes presented are slight or altogether absent. Especially is this true in muscular rheumatism. Usually the synovial membranes of the affected joints are injected, discolored, and swollen, and their articular surfaces coated with fibrin. The soft parts around the joints are often extensively infiltrated and swollen, which causes them to be extremely sensitive to the touch. These swellings are often soft or they may be tense and elastic, or edematous and pit on pressure. There is never suppuration unless there is mixed infection.

The effusion accompanying rheumatism is chiefly of a serous consistency; however, it contains a small amount of fibrin and leukocytes. A similar exudate appears in the periarticular tissue, the tendon and synovial sheaths. In protracted cases the cartilages may become eroded. The synovial fluid is usually in excess and deeply colored with red. There is a tendency to formation of coagula and false membranes, which, when they become organized, produce lameness and stiffness. Softening and rupture of the tendons has been observed by several well known authorities. Calcification sometimes occurs. The affected joints often become denuded of their articular cartilage.

Whenever we are called upon to examine a horse suffering from lameness of the shifting variety, it behooves us, as con-

scientious practitioners, to make a correct diagnosis in the living animal. To do this we must intelligently consider the several differential diagnostic points between osteoporosis, millet disease and rheumatism. These we will now briefly consider.

Differential Diagnosis.

Osteoporosis.

1. Shifting lameness.
2. Chronic or slow onset.
3. No history of millet feeding.
4. Recoveries are extremely rare.
5. No decided kidney or urinary changes.
6. Bowel action normal or near normal.
7. Very slight elevation and variation of temperature.
8. Course and severity not influenced by atmospheric conditions; however, same is decidedly altered by climatic changes.
9. Almost always assumes the chronic type in spite of care and treatment, unless there is a rapid change to another more favorable climate. No results from treatment with salicylates or asperin.
10. Lack of spirit, sluggishness, ease of fatigue, even with moderate, slow and light work, are prominent symptoms. In the beginning there is presented very slight articular or bone (ostitis) lameness, which becomes gradually aggravated, accompanied by a slight elevation of temperature. No generalized or localized muscular soreness.
11. "Choppy," awkward, and clumsy gait, with a decided tendency to stumble. They frequently lie down and have no desire to get up.
12. No tendency toward the development of complications involving either the heart, lungs or kidneys.
13. Tongue not coated, and there is no sour odor from mouth, unless the jaw bones have become involved to such an extent that mastication is interfered with.
14. No discoloration of visible mucous membranes.

15. No noticeable localized muscular atrophy. General emaciation develops gradually and slowly.

16. No tumefaction of vulva and vagina in mares.

17. The mule is as much susceptible as the horse, and the disease affects them similarly.

18. Localized or generalized inflammation of the joints, characterized by heat, slight swelling, and some pain on pressure. Infiltration into the tissues in close proximity to the affected joints. However, infiltration and swelling of the joints is by no means a constant symptom, as we oftentimes observe lameness with no visible evidence of joint involvement.

19. In most cases there is a well marked synovial distension.

20. Does not attack tendons, hence rupture of them never takes place.

21. The bones become enlarged, thickened and softened. They may be easily pricked with knife or needle, and are readily indented by pressure. The teeth become loosened and mastication is impaired, difficult or impossible. Of course, in such cases digestion and assimilation is imperfect. Characteristic symmetrical face and lower jaw enlargement occurs in over 95 per cent. of the cases.

22. There is a tendency for the ligaments and tendons to tear away from their insertions, carrying periosteum and bone with them.

MILLET DISEASE.

1. Shifting lameness.

2. Acute or sudden onset.

3. History of millet feeding.

4. Discontinue millet feeding and the symptoms rapidly disappear; a large per cent. of the cases make quick and complete recoveries.

5. At first there is overstimulation of the kidneys, characterized by frequent and copious flow of urine. This is followed by partial or complete suppression of urine. The urine in the sub-acute and chronic stages is thick, light colored and

scanty. When the disease advances to the stage where chronic nephritis begins, we get intermittent colicky pains and other symptoms ordinarily encountered in cases of suppression of urine, including those of uraemia.

6. Bowels constipated.

7. Slight elevation of temperature (102-104) of the remittent type, which continues throughout course of the disease.

8. Course and severity not influenced by climatic or atmosphere conditions.

9. Rarely ever becomes chronic, provided the millet feeding is discontinued early. Medical treatment is unnecessary. We get no results from treatment with salicylates or asperin.

10. Lack of spirit and energy, associated with restlessness, loss of appetite, accompanied by indigestion, staring coat, painful expression, and general debility. Very little muscular soreness.

11. "Stilty," uncertain "straddling," and painful gait, oftentimes eliciting a groan at each step. There is constant uneasiness and the animal frequently shifts weight from one leg to another in rapid succession. There is a "tucking up" of flank and the animal assumes a cramped position with back arched and head dropped.

12. There is no tendency to the development of cardiac and pulmonary complications. However, kidney involvement is constant.

13. Tongue coated and peculiar sour smelling odor from mouth.

14. Visible mucous membranes are reddened.

15. There is no localized muscular atrophy; however, general emaciation takes place rapidly.

16. In mares there is often a tumefaction of the vulva which extends into the vagina.

17. Mules are not near so susceptible to millet disease as horses; however, when once contracted by the mule, it runs a severe course, and often leaves permanent lesions from which they rarely completely recover.

18. Localized or generalized joint soreness characterized by heat, swelling and pain. The joints involved are usually hock, stifle, knee and elbow.

19. Diminished amount of synovial fluid in the affected joints. In fact, its entire absence is not by any means infrequent.

20. No softening of the tendons, and they have no tendency to become ruptured.

21. No thickening or enlarging of any of the bones. No loosening of the teeth or interference with mastication.

22. There is a tendency for the ligamentous and muscular attachments to tear away from their insertions, carrying periosteum and bone with them.

RHEUMATISM.

1. Shifting lameness.
2. Acute or sudden onset.
3. No history of millet feeding.
4. Spontaneous recoveries are frequent.
5. No decided kidney or urinary changes.
6. Bowel action normal.
7. Temperature varies from normal to 106-107 degrees.

8. Its severity and course is altered to a slight degree by climatic changes. Atmospheric conditions play an important role in the development of symptoms, course and termination of rheumatism.

9. If not treated it ordinarily assumes the chronic type. In most cases the disease readily yields—temporarily, at least—to treatment with salicylates or asperin.

10. The animal becomes languid; has no desire to move; has a restless and painful expression. In most cases there is very pronounced lameness and generalized or localized muscular soreness. The elevation of temperature usually precedes any articular or muscular symptoms.

11. The gait varies in rheumatism, depending upon its location and severity and character of tissue involved. The affected

joint is usually held in a semi-flexible position and absolutely motionless.

12. There is a tendency to complications, such as myocarditis, pericarditis, endocarditis pleurisy, bronchitis, etc. No kidney complications develop.

13. Tongue is not coated and there is no sour odor from mouth.

14. Visible mucous membranes slightly injected.

15. Oftentimes there is a decided localized muscular atrophy. This may involve one muscle or a group of muscles. Emaciation takes place slowly.

16. No tumefaction of vulva and vagina in mares.

17. The disease is no more severe in the mule than it is in the horse. It is no respecter of animals. Appears in horse, mule, dog, cat, sheep, goat, and even wild animals.

18. Localized or generalized joint soreness, characterized by heat, swelling, pain and injection of affected joints. The soreness wanders from joint to joint, from joint to muscle, or from fascia to tendon, etc. It is no respecter of tissues. However, it rarely ever attacks bone. A joint which has once been rendered weak by previous injury or disease is especially liable to suffer. Infiltration and swelling of the soft parts about the affected joints causes them to be very sensitive to the touch. The swellings may be soft, tense, elastic, or oedematous and pit on pressure. In some cases there is no swelling or other external manifestation of disease; however, pressure or movement will elicit excruciating pain.

19. Excess of synovial fluid in the affected joints.

20. The tendons sometimes become softened and rupture.

21. No symptoms of bone lesions.

22. No tendency for the ligaments and tendons to tear away from their attachment.

For the past ten years, when called upon to diagnose cases of "shifting lameness," I have pursued the following course, and I am gratified to state that very few mistakes in diagnosis have been made during that time. My routine is as follows:

Examine maxillary bones. If they are not thickened we are quite safe in excluding osteoporosis. Make inquiry into the history of millet feeding. If informed that no millet has been fed, we can safely exclude millet disease. This leaves us to make a diagnosis of lameness from rheumatism by excluding the other two.

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THE POISON WEED PROBLEM IN THE ARID WEST.

By Geo. H. Glover, M.S., D.V.M., Veterinary Department,
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Of all the untoward conditions which hamper the live stock industry in the more arid regions of the West, that of poisonous plants on the open range certainly has the greatest economic significance.

While this question is paramount with the stockmen and depreciates the leading industry of this enormous area, yet strange as it may seem, very little systematic work has been done looking to a practical solution of the problem.

The open range conditions still prevail largely, and always will, because of the existing climatic conditions. A conservative estimate has placed the annual loss of live stock in Colorado alone at $100,000.

Poisonous plants are often aggressive in the struggle for possession of the land, and thus become pestiferous to cultivated crops and supplant native grasses. Animals because of hunger eat more or less freely of them.

The results are not always acute poisoning, but on the contrary, may, as in the case of loco weeds, bring about a protracted condition of unthriftiness, failure to breed or put on flesh, followed by cachexia and death. The valuation of the animals actually destroyed does not near represent the aggregate loss sustained by poisonous plants. The loss of a few animals and a permanent injury to many, combined with the monopolizing of grazing lands by noxious weeds, have in many instances depreciated land values and curtailed profits until the owner is at last forced into bankruptcy and obliged to abandon otherwise ideal ranges.

The total loss to the state from poisonous plants no doubt exceeds one million dollars annually.

In the realm of toxicology we are still groping in the dark; the problems are many and intricate; it must be acknowledged that we have not made great headway. The following are a few of the many obstacles to contend with in poisonous plant investigation.

Some Animals More Susceptible Than Others.—Plants injurious to one species are harmless to others. The horse, mule, and goat eat poison ivy with impunity. Clover and alfalfa may cause a true intoxication, with bloating, under certain conditions, in ruminants; horses pasture upon the green plant without danger. Individuals of the same species show a wide divergence of susceptibility to poisons. As has been well said, "What is one man's meat is another man's poison." Poison ivy produces a violent inflammation of the skin on most persons. Some will escape and are apparently immune at one time, and equally as susceptible at another period of life. Throughout the vegetable kingdom, from bacteria all the way up to the mighty oak, we find species of plants poisonous under certain conditions, but few of them poisonous under all conditions.

Some Plants Are Poisonous Only at Certain Stages of Growth.—The lupines (wild pea—horse beans), are found growing in almost every section of the state and in great abundance on the Western Slope, and in many places are cut for hay; they are poisonous only at the time of going to seed. Larkspur (Delphinium), is very deadly early in the spring, and loses its toxicity almost at flowering time. The death cama (Zygadenus venenosus), growing from a poisonous bulb, is very deadly early in the season, but gradually becomes less harmful and dries up in July. Sorghum and kaffir corn, which became popular forage crops in the non-irrigable sections of eastern Colorado, have produced such disastrous results from feeding green at certain stages of growth that their cultivation has been generally abandoned. In Bulletin No. 37, of the Idaho Experiment Station, is found the following bearing upon this subject: "The roots of the wild parsnip or water hemlock, which are so virulent in the early

FIG. 1.—Astragalus Mollissimus. Commonly called "Wooly loco."

spring, have been fed to cows in the late summer and early fall without ill effect. Another member of the same family, the hemlock water parsnip, has a root which is poisonous in the early spring, but harmless after midsummer, while the roots of another plant of the carrot family, poison hemlock, contain no trace of poison during March, April or May, although considerable quantities of the active principle coniin are present in the leaves and stems by May. Later in the season the roots also become dangerous."

Variations According to Season, Climate, Etc.—There are other serious difficulties to contend with in a systematic investigation of this subject. The danger of certain plants varies according to season, climate, character of soil, etc., from year to year. A dry season is generally favorable for the development of poison in most plants. A plant may be poisonous in one country and harmless in another. Jimson weed is more active in America than in Europe. Some plants become less poisonous by cultivation, such as wild hellebore and aconite. Where the plants contain poison in small quantity the native stock obtain a certain amount of immunity and will feed without harm on a range that will prove disastrous to other animals. The active principle may exist performed in the plant, which is generally the case, or it may be formed by the action of ferments during mastication and digestion.

Unusual Conditions May Affect the Quantity of Poison in Plants.—In sorghum and kaffir corn a stunted growth, resulting from arid conditions, is best suited for the development of prussic acid, the most powerful poison known. The poisoning by Johnson grass (a near relative of sorghum), is no doubt due to the same cause, as shown by Crawford and by Jeffries.

The common potato, which belongs to the same genus as black nightshade, spreading nightshade, bitter sweet, and other dangerous plants, contains an active alkaloid solanine which develops in large quantities when potatoes become green from exposure to the sun. This is no doubt the cause of the sudden and

FIG. 2.—Delphinium Geyeri Green. One of the more common larkspurs. Not in bloom.

mysterious death of horses in the vicinity of Greeley that had been turned into potato fields after digging time, many small potatoes having been left on the surface exposed to the sun. The wilted leaves of the wild cherry are poisonous. In the eastern section of the state a scrubby cherry is found growing along the small streams and arroyas, and some loss in cattle has been reported. Several species of cherry are found growing abundantly along the ravines in the mountains.

Poison Found in Different Parts of Plants.—Another discouraging feature in poisonous plant investigation is that the poison is not always found in the same part of the plant. In the case of wild hellebore, aconite, showy milkweed, thorn apple, and many others, the entire plant is poisonous. In wild parsnips the roots contain most of the poison. In lupines and yellow dock the seeds are dangerous. In potatoes the roots may be harmless and the tops poisonous. In the mountain laurel and wild cherry it is the leaves. In milkweeds the stems are said to be poisonous. In the crowfoot family it is found that the flowers are especially dangerous.

Conditions Under Which Poisonous Plants Are Eaten.—Most poisonous plants are bitter and are avoided by animals. When confined to a certain range and not interfered with, they learn to avoid them, but are frequently poisoned while being moved from one locality to another. When an animal is hungry it will eat weeds that it would not otherwise touch. While driving the herd at the time of the roundup or to market they will be seen reaching for the tops of weeds that at other times they would not molest. It is a matter of common observation that the greatest amount of poisoning occurs under these conditions, and the reasons assigned are that the animals when driven for some distance become ravenously hungry and have not time to make the same choice of forage plants as when at rest.

The time of greatest danger is during or immediately after a rain or snow storm in the spring months. Alfalfa, whether green or cured, is known to be much more dangerous for cattle

FIG. 3.—Delphinium Nelsonii. Dwarf larkspur. In bloom.

and sheep when wet from rain or dew. This seems to be the case with some poisonous plants, especially larkspur. The explanation most commonly proposed for this phenomenon, however, is that when the ground is wet the roots are more readily pulled and eaten, and being much more poisonous, the danger is enhanced.

The Chief Offenders.—The list of plants that are poisonous at all times and under all conditions is a short one; those that have been known to poison animals under special conditions, constitute a long list and range all the way from bacteria and fungi to the poison oak. Loco and larkspur are the chief offenders on the Western ranges and no doubt are responsible for fully 98 per cent. of the loss in Colorado.

Loco Weeds.—That certain plants known to the Spaniards as loco weeds (crazy weeds) were dangerous to horses, was traditional among the natives and early settlers prior to 1860. Exceedingly interesting were the many theories advocated to account for the strange phenomena induced in animals from eating these plants.

The " cow men " were as a unit in declaring that these plants were directly responsible, on the other hand there were those possessing less intimate knowledge of the subject and reasoning from analogy, by casual observation of the " feast and famine " method of conducting the range cattle business, who were equally sure that there was nothing to it but malnutrition induced by starvation and neglect. Of the many theories advanced by the cattle men to account for this condition it may be of interest to mention a few of the most common—First: *Sand in the stomach, gotten while digging for the roots of the loco weeds.* Second: *Parasites commonly found in crown of the roots which eaten by animals poison them.* Third: *A fungus growing upon the plants which was supposed to account for their being very poisonous in some places and not so in others.*

These and many more equally absurd hypotheses had no scientific value in themselves and were of interest only so far

as they added to the sum total of evidence against the particular plants as being in some way the causative factor.

Although several investigators have undertaken to solve the mysteries surrounding this perplexing problem nothing definite was ever acomplished until the Department of Agriculture undertook the work in a systematic way four years ago. The Experiment Station at Fort Collins co-operated with the work in Colorado by furnishing live stock and assisting in post-mortems.

In Bulletin No. 121, part 3, issued by the Bureau of Plant Industry, is found a brief report of the results of both field work and laboratory conclusions. In this report we find the following: "The name loco-weed has been applied to a large number of plants, but two are considered especially obnoxious—Aragallus lamberti and Astragalus mollissimus." "The principal pathological changes are pronounced anemia of the whole system, diseased stomach walls, and in acute cases a congested condition of the walls of the stomach, while in chronic cases, there are frequently ulcers. There is an excess of fluids in the various cavities of the body. This is especially noticeable in the epidural space of the spinal canal. In most locoed females the ovaries are found in a diseased condition."

In regard to the possibility of exterminating the weeds, the report says: "There seems to be no way of ridding the ranges of this, however." In regard to the care of the disease the report informs us that, "it was found that locoed cattle can in most cases be cured by a course of treatment with Fowler's Solution."

As to the cause of this condition, Albert C. Crawford, pharmacologist, reports, "It is the inorganic constituents, especially barium, which are responsible for this poisonous action at least in the plants collected at Hugo, Colorado."

The discoveries revealed by this investigation already are of much scientific value—their economic significance is in the future.

Larkspur.—In the category of poisonous plants of the West, the several species of larkspur easily take second place.

The genus Delphinium contains no less than eighteen species in Colorado and many of them are known to be poisonous at times. *The poisoning occurs mostly in the spring time and invariably during a rain or snow storm.* Last spring in one instance seventy-four head of cattle died out of a herd of about two hundred. The conditions in brief were—*cattle grazing upon larkspur after a spring shower that did not last to exceed ten minutes.* The same favorable conditions existing a large number of animals are liable to succumb, making the loss heavy in each instance.

Larkspur grows in great abundance in the mountains and *the greatest damage is done at an elevation of over 7,000 feet.* Dragendorff and Marquis report that in Delphinium Staphisagria a number of bases (delphinin, delphinoiden, staphisagrin) have been isolated. Several Western species of larkspur have been reported to yield an alkaloid, delphocurarin. *This alkaloid has been used in vivisection work and promises to be of some commercial value.* As to treatment for poisoning by larkspur atropine as a physiological antidote and potassium permanganate as a chemical antidote seem to give the best results. The stockmen relieve the bloating by "sticking" in the rumen; bleeding from the ear vein or tail is thought to best afford relief?

Most of the poisoning occurs when the animals are alone on the range, and therefore any effort calculated to curtail this heavy loss to the stockmen must be prophylactic in nature. In referring to my note book I find that of seventeen cases of heavy losses from poisonous plants in various sections of the state, sixteen of them were found upon investigation to have been caused by larkspur.

When you think of poison weeds in the Rocky Mountains, remember that it is mostly a loco-weed and larkspur proposition. The accompanying cuts were made from photographs taken from specimens from the Veterinary Department poison weed herbarium.

THE VALUE OF TUBERCULIN IN THE CONTROL OF TUBERCULOUS HERDS.

By VERANUS A. MOORE, Ithaca, N. Y.

Presented at the International Congress on Tuberculosis, Washington, D. C., Sept., 1908.

The awakening to the fact that tuberculosis existed to any considerable extent in the cattle of America was a result of the discovery of tuberculin by Robert Koch and its later application as a diagnostic agent. A careful inquiry into the extent and distribution of bovine tuberculosis shows that it is most prevalent in those districts where there has been the greatest interchange of cattle. As its dissemination depends largely upon the introduction of infected individuals it was not strange that with an unrestricted cattle traffic, many infected animals were innocently bought and sold, thereby carrying the disease and spreading its virus.

The usual slow development of tuberculous lesions in cattle, and the fact that many infected individuals are spreading the bacilli before their true condition is suspected, made it possible for a large number of herds to become extensively diseased, as a result of the increase in cattle traffic caused by the constantly growing demand of our large cities for milk.

When the extent of bovine tuberculosis was first ascertained there was a tendency to radical state control and slaughter of infected animals because of its supposed sanitary significance. The disease appeared to be one of such magnitude that the people looked to the state for both counsel and financial assistance in its eradication. The state efforts by legislation and official control, however, have not eliminated it as quickly as was generally anticipated. With a growing knowledge of tuberculosis and its parasitic nature, we are growing to realize more and more that it is not so much a matter of state, as it is one for the individual to deal with. Like a noxious plant its seed must

be kept out. While the state and nation have their responsibilities concerning it, the individual cattle owner must in the last analysis see to it that his herd is protected from infection, which usually comes with the purchase of tuberculous cattle or the feeding to calves of milk from tuberculous cows. It is therefore largely a personal problem, the solution of which is to be found in the methods adopted and followed by the individual owner protected by proper legislation and given as much other assistance by the state as the legislature may see fit to confer. The burden of the effort to eliminate bovine tuberculosis is with the individual farmers in whose herds the disease may exist. The work before us is to formulate methods that will enable individual cattle owners to apply the present knowledge of tuberculosis to the existing conditions in their herds with the least loss and the quickest returns. It is my purpose, therefore, to discuss the subject of bovine tuberculosis as an individual matter, and to point out the value of tuberculin in this personal conflict with it.

As tuberculin made it possible to determine the presence of tuberculous infection, it is also the one indispensable agent to rely upon in the control of this parasitism. While many of our states have passed laws relative to the use of tuberculin in the official effort to control tuberculosis, a large number of cattle owners have privately attempted to eradicate it by the same means. In New York I have collected some data on this point. In 1907, I secured the results of the tests made (1904-6) with tuberculin on 683 herds, containing a total of 12,721 animals. Of these only 262 herds, including 3,088 animals, were tested by the state, while 421 herds with 9,633 animals had been thus examined by privately employed veterinarians. The practical dairymen have come to recognize the inefficiency of a physical examination, and the necessity for some specific reaction to detect tuberculous infection. This has caused the value of tuberculin to be appreciated and employed by a steadily increasing number of cattle owners.

In using tuberculin certain apparent discrepancies have appeared which have caused many dairymen to question its value. This is due to the lack of knowledge concerning it. The dairyman does not distinguish between active, healed or latent tuberculous lesions, and up to a comparatively recent date pathologists have been unable to instruct them in the significance of these technical differences. It is important, however, that the *interpretation* of the reaction or non-reaction of tuberculin should be clearly understood. The experience of the last few years has called into question certain interpretations and conclusions concerning its accuracy that heretofore were accepted. The findings of Carini, that failure of tuberculin may be expected in about 17 per cent. of cases, and Lignières, that a tolerance may be established which results in a failure of the tuberculin to give a reaction in certain cases where later post-mortems reveal the presence of tuberculous lesions, have been somewhat general when tuberculin has been applied under certain conditions. The phenomenon of the tuberculin reaction has not been satisfactorily elucidated. The explanation offered some ten years ago by Eber, and recently modified by Smith will, if correct, do much to clarify the confusion regarding the non-reaction of tuberculin in cases where there are healing tuberculous lesions. According to this theory for the action of tuberculin "the tubercle bacilli have induced certain tissue changes, and with them certain new functions of the tissues have been aroused, which are the result of immunization." It is the action of the specific product resulting from these changes upon the tuberculin that causes the latter to split off a poisonous substance which produces the elevation of temperature.

A study of tuberculous lesions shows that when the process of healing begins there is formed about the foci a wall of fibrous, or fibrous and cellular, tissue which tends, to a certain degree, to separate the lesions from the surrounding tissue and the circulation. The specific product resulting from the tissue changes as stimulated by the tubercle bacilli in the focus is

therefore largely confined to the diseased area and cannot act upon the tuberculin if it is subsequently injected. This explains the failure of tuberculin to react in those cases where tubercles are healing. As a small part of the specific product of the tubercle may be disseminated in the circulation or surrounding tissues and as its elimination may be slow, it is not unlikely that the partial reactions that often occur may be explained on the hypothesis that there still remains enough of the specific substance to liberate poison sufficient to disturb the temperature, but not to cause a characteristic rise. More extended investigations are necessary to determine at what stage in the healing process reaction ceases either in part or completely. It is presumable that a number of conditions contribute to this result. In an experiment with 17 tuberculous cows, 12 failed after a certain time to react. The post-mortem examination revealed lesions that were small and few in number and in all cases but one they showed evidence of healing. In four of the five cases that reacted, quite as much reactionary tissue existed about the tuberculous foci as there was about those in the animals that failed to react. In one the disease was very active and general. In other words, the line of demarcation between the lesions in animals that react and those that fail to do so is not always apparent. Likewise, the failure of the animals to react during the period of incubation and the reaction that occurs before the lesions are in evidence, bring us to another point that must be recognized and explained on the same basis. Because of these limitations of tuberculin, results have been accepted as failures, when the conditions were such that the tuberculin could not cause a reaction or when the reactions have occurred before the lesions were of sufficient size to be readily found, or were localized in organs and tissues not ordinarily examined.

In the application of tuberculin by veterinarians for eradicating tuberculosis in private herds, it is very important that the limitations of its action be fully appreciated and explained to the owners. This is desirable in order that the necessary

precautions may be taken, and the expectations of the owner so adjusted that he will not be disappointed by the results. The tendency of cattle men to believe that when an animal fails to react, or ceases to react if it has previously done so, it is perfectly safe to be placed with sound animals, cannot be overcome without duly acquainting them with the facts. If the limitations of tuberculin and the possibilities of infection are taken into account, the conservative method of dealing with bovine tuberculosis, as first recommended by Prof. Bang, has great possibilities. In the state of New York it has been applied in a number of private herds with excellent results. In certain breeding herds it has been the means of saving valuable strains of animals. After separating those that respond at the first test, repeated injections at proper intervals have pointed out the individuals that were infected, but did not respond in the beginning. The breeding from the infected animals has been successful so that the infected individuals have been replaced by sound offspring. The infected animals are eventually a loss to the owner beyond what beef value they may possess; but valuable strains have been preserved so that the final depreciation is not serious. There are scores of infected herds in New York state that are being replenished with sound animals after this method and the Commissioner of Agriculture of that state is recommending it to the dairymen generally.

The real purpose of the Bang method is to build up a sound herd from a tuberculous one. The existing conditions relative to the duration and extent of the infection are important factors in considering the probable outcome of the non-reacting animals in the original herd. In certain herds where the Bang method has been applied under my personal observation, the results have been quite different respecting the original non-reacting animals. In one case, where there were 17 reacting and 13 sound individuals, but one of the 13 subsequently reacted, although tested semi-annually for four years. In other herds a much larger percentage have been victims of this insidious infection.

In one herd of 491 animals tested, there were 96 cows that did not react. These were placed by themselves in a practically new barn, and three months later, and every six months thereafter, the herd was tested. Those that responded were promptly removed and the stable thoroughly disinfected with 5 per cent. carbolic acid after each test. The results of the consecutive tests of the non-reacting animals are exceedingly instructive. They are as follows:

1904, July,	96	tested,	31	reacted,	65	did not react,		32.3%	reacted.
1905, Jan.,	65	"	8	"	57	" " "		12.3%	"
July,	57	"	15	"	42	" " "		26.3%	"
1906, Jan.,	42	"	15	"	27	" " "		35.7%	"
July,	27	"	3	"	24	" " "		11.1%	"
1907, Jan.,	24	"	2	"	22	" " "		8.3%	"
July,	22	"	1	"	21	" " "		4.5%	"
1908, Jan.,	21	"	1	"	20	" " "		4.8%	"
Aug.,	20	"	1	"	19	" " "		5. %	"

During this time these animals were kept by themselves. There was no opportunity for infection after they were removed from the general herd. Several of the reactors were examined post-mortem. The lesions were slight in extent but of long standing. They were surrounded by a wall of fibrous tissue. The conclusion seems to be warranted that these animals were infected while associating with the diseased cattle and that the lesions had become arrested before the first test was made. The lesions in those examined post-mortem were too old, and the tests were made too frequently, to suspect that they could have started and reached the stage of development found in the short time between tests. The repeated tests of the reacting animals in the same herd support this hypothesis. The tuberculin test made three months later showed fully 25 per cent. of non-reactors. Several of these continued not to respond, while others reacted again later. This oscillating of the morbid process between an active and an arrested condition is an important factor in considering the future of the supposed healthy animals and in interpreting the tuberculin reaction.

In addition to the value of tuberculin in eradicating tuberculous infection from a herd, it is indispensable in examining cows to be purchased in order to prevent its introduction. If they fail to react, and they come from infected herds, it is very necessary that the test be repeated. Experience has shown that when a herd becomes extensively infected (50 per cent. or more reacting) a considerable number of the non-reactors are suffering from latent or dormant tuberculosis which may become active later. The failure to recognize this fact has caused the disease to reappear in many herds where the reacting animals from the first test had been destroyed. This is illustrated from the following observation. In July, 1906, 92 cows from a tuberculous district were purchased on the tuberculin test. They were tested every six months thereafter. They were kept by themselves for a year, and were never exposed to known infected cattle after their purchase. The results of the subsequent tests were as follows:

1907, Jan., 92 tested, 0 reacted.
June, 92 tested, 3 reacted, 89 did not react, 3.3% reacted
1908, Jan., 89 " 24 " 65 " " " 27 % "
Aug., 65 " 4 " 61 " " " 6.2% "

In 1907 there were purchased for a dairy herd on the tuberculin test, 65 cows from a dealer who had secured them from a district in which there is considerable tuberculosis. At the same time, 52 cows were bought from a herd that has been kept free from this disease. The results of the subsequent tests of these two groups of cattle which were kept separate and not exposed to other diseased animals are instructive.

(1) *Cows from Infected Herds.*

1908, Jan., 65 tested, 17 reacted, 48 did not react, 26.2% reacted
Aug., 48 " 0 " 48 " " " 0 % "

(2) *Cows from a Tuberculous Free Herd.*

1908, Jan., 52 tested, 0 reacted.
Aug., 52 " 0 "

These animals were exposed to as much infection, if there was any at all, in barns and pastures as the previously mentioned cases. It is unfortunate that we have not records of these animals extending over a longer period of time, but they are sufficient to point out the importance of considering both the accuracy of tuberculin and its limitations.

Tuberculosis is unlike most other infectious diseases in that the tuberculous animals still retain their beef and breeding values if the disease is detected early. It is this intrinsic value of the slightly infected animal, which in some cases exceeds that for its milk production, that justifies the opinion set forth in this paper, that for the best and quickest results in eliminating bovine tuberculosis it must be controlled in individual herds. It is in this connection that the subject comes close to the practicing veterinarians, who, as guardians of the health of the animals, have not only great responsibilities concerning the prevention of this disease, but also unlimited opportunities.

The work in New York has pointed out very clearly the danger of building up herds with non-reacting individuals taken from herds in which there is a greater or less amount of tuberculosis. The sound herd rather than non-reacting individuals should be sought for by the purchaser. This will require more attention in breeding and less indiscriminate buying of cattle. The essential facts that have been elicited from the results of our work and which we have found to be important in the control of tuberculosis in individual herds may be summarized as follows:

1. The cattle should be tested with tuberculin, subcutaneous injection, and all of those giving a reaction should be removed. The reacting animals should be either destroyed, slaughtered for beef under proper inspection, or kept for breeding purposes after the Bang method. The choice of procedure must depend upon existing conditions.

2. The herd should be retested at intervals of from six months to a year and all reacting animals promptly removed.

3. Cattle for dairy or breeding purposes should be bought from sound herds only.

4. Animals that have once reacted should not be placed with sound cattle, although they may cease to react and remain well to all appearance.

5. Milk from cows of uncertain health should not be fed to calves unless previously sterilized.

6. It is desirable that the owners keep a record of the tuberculin tests of their cattle, made by competent veterinarians. Such a record of each animal is a valuable asset.

7. The application of tuberculin should not be trusted to unskilled persons.

8. In eradicating tuberculosis the individual herds are the units to deal with, and their owners must be held responsible for them.

THE management of the recent International Congress on Tuberculosis at Washington, D. C., awarded to the Bureau of Animal Industry, U. S. Department of Agriculture, a special gold medal for the best pathological exhibit. The REVIEW congratulates the Bureau on winning the highest prize in competition with other governments and with the leading tuberculosis institutions of foreign countries. It is an honor of which we may all feel proud.

A DIFFERENT VIEW OF THE SITUATION.—Since reproducing the little extract from the *Farmer's Advocate*, Winnipeg, Manitoba, in regard to hazing at the Ontario Veterinary College, Toronto, the REVIEW has learned some facts that show that account to be misleading. It would seem that the young men instead of "pressing civilians into service" as there stated, were, on the contrary, raided by a curious crowd, who forced themselves upon the students, even to the extent of entering the court-yard of the college; where, becoming mixed up with the freshmen, they were initiated in due form. Upon being released, they stirred the crowd outside to an attack upon the students, who naturally resented it and sought to protect themselves and their rights, and police interference became necessary. This throws a different light on the matter, and justifies the display of righteous indignation in the vigorous young men of that venerable institution.

SHIPPING FEVER.*

By Chas. H. Jewell, Veterinarian, U. S. Army.

The term shipping fever is one generally applied by shippers of horses, to all the various febrile conditions of a contagious or infectious nature, attacking young animals during or following shipment.

These troublesome fevers are always present in the large sale stables of our great cities and costs our live stock owners many thousands of dollars annually. It seems to be one of the great problems for veterinary science to solve and I believe it is one of the duties of our great Bureau of Animal Industry to take up the work of eradicating these much-dreaded diseases from our great horse markets.

From a professional standpoint we recognize four (4) different forms or types, namely, influenza, strangles, catarrhal fever and pharyngitis with or without its accompanying laryngitis. All of these are infectious and cause great losses and inconveniences to the mounted service, especially when new and young animals are purchased. It is not uncommon to have fifty to seventy-five per cent. of such animals disabled on this account for several weeks and not unusual for large numbers to succumb from one of the many complications which so often follow an attack of any one of the above disorders. The most common complications are pneumonia, pleurisy, purpura haemorrhagica and rheumatism.

The symptoms of the various forms may be enumerated under the head of each disease and a general treatment can be prescribed with the exception of special cases.

Influenza.—Symptoms: High fever, 103° to 107° F., great muscular weakness; loss of appetite; yellow color of the visible mucous membranes; discharge from the nostrils; legs

* Presented to the forty-fifth annual meeting of the American Veterinary Medical Association, Philadelphia, 1908.

may be swollen; eyes swollen and watering; colicky pains; dung coated with mucus; flatulence causing the anus to be constantly open; respirations may be accelerated, especially when the lungs are involved; pulse full and bounding in the early stages later may become weak; nervous symptoms may occasionally develop.

Strangles.—Symptoms: High fever, 103° to 106° F.; muscular weakness; sore throat and cough; profuse discharge from both nostrils of a thick sticky nature; constipation; full bounding pulse; legs may be swollen; loss of appetite; the early swelling and abscess formation of the glands of the sub-maxillary and partoid regions and in some cases the formation of abscesses on different parts of the body, such as the neck, shoulder, etc.

Pharyngitis.—Symptoms: Those cases which appear in a contagious form show marked fever, 103° to 106° F.; loss of appetite; weakness; throat sensitive to the touch; head held stiffly and extended; water and feed are ejected through the nostrils when the animal attempts to swallow; discharge from the nostrils of a dirty green color; cough is often severe; breathing at times very difficult on account of the inflammation of the lining membrane of both the pharynx and larynx; swelling of the sub-maxillary glands; pulse accelerated; bowels constipated.

Catarrhal Fever.—Symptoms: This form of shipping fever, when uncomplicated, runs a much milder course than the preceding classes; usually we see a profuse sticky nasal discharge; temperature ranging from normal to 102° to 104° F.; mucus rale heard when the ear is placed over the trachea; throat may be slightly sore; legs occasionally swollen. The symptoms resemble very closely those of acute nasal catarrh, with the exception of the nasal discharge; which is more profuse in catarrhal fever and the latter disease takes an epizootic form, attacking all young animals within certain areas. As to the contagious or infectious nature of the above diseases the profession as a whole is united, but as to the incriminating germ in

any one of these maladies, we are as yet in the dark. It is my belief that each, representing distinct symptoms, must be caused by some specific infection.

Treatment.—The treatment of these disorders varies according to the severity of the symptoms manifested; first we look to the surroundings of the animals, such as the provision of a comfortable box stall free from drafts, the food should be laxative and of a tempting nature, all sick animals should be isolated if possible from the healthy ones to prevent further spread of the disease, in cases of strangles the abscessed should receive surgical attention, pharyngitis is often relieved by local applications, such as cold or hot packs and if the swelling be so great as to endanger the life of the animal it may be necessary to perform tracheotomy, the mild cases of catarrhal fever need only ammonium chloride 2 drams in the drinking water twice daily, should the legs swell it should be alternated with postass. nitrate one-half ounce once daily, complications must be treated as the symptoms arise.

In all cases where the fever runs high and accompanied by great muscular weakness the following prescription, which has combined, a valuable stimulant, tonic and diuretic is of the greatest value:

℞

Spts. Nit. Dulc.
Spts. vini Recti aaf℥xvi.
Quinine sulph. ℥ii.
M.

Any of the quinine which may not dissolve can readily be made to do so by adding a small amount of sulphuric acid, say one to two drams of the concentrated acid. Of this mixture give two ounces diluted with four ounces of water, administered with a dose syringe every two hours and gradually lessen the interval as the fever diminishes. This invariably reduces the temperature in one to three days, without the injurious effects so often seen by the use of dangerous antipyrites such as aceta-

nilid and the other closely allied products. In cases where the heart is very weak this treatment is greatly augmented by the hypodermic injections of small doses of strychnine, one-half grain, twice daily. Many of the newer products have been tried by the veterinarians stationed at Fort Riley, Kansas, and in most instances with gratifying results; among them is tallianine, nitrox antitoxin, antistreptococcic serum and influenza antitoxin, the two latter has been most used as a preventive, of which I will speak later. Tallianine in many cases seemed to work like magic in reducing the fever and strengthening the animal, and again the results were nill. The later product which is now claimed to be heavier charged with ozone and more stable, I have not had the opportunity of observing its effects. The nitrox antitoxin has given uniform results in all cases upon which we have used it and has proven highly beneficial especially in cases where we have lung complications. It reduces the fever very quickly and increases the vigor. It should be injected intravenously and at blood heat, using precautions as to antisepsis. Most of these new drugs are great aids in the treatment of these maladies; but on account of their high price most practitioners can only use them as adjuncts to the older and cheaper remedies.

Preventive Treatment.—This consists of employing means to prevent young horses coming in contact with the contagion, such as infected animals, stables, cars, etc., through an intelligent disinfection of stables, cars, utensils, etc., which may have become contaminated, and the use of antitoxins. The latter is along the lines of advanced medicine and deserves more than a passing notice. These serums are prepared from blood taken from horses, whose immunity to these diseases is at its maximum. This immunity is produced by the animal having passed through a previous attack rendering the blood strong in antitoxic properties. The blood must be drawn and handled in a manner to keep it perfectly sterile, if contamination takes place it is worthless. The serum is passed through a filter and then tested upon

culture media to test it for contamination, if sterile it is then tested upon a guinea pig to test its safety; if it then meets all requirements it is sealed under strict aseptic precautions.

There are three different products or serums upon the market at present, namely, Park, Davis & Co.'s influenza antitoxin, Mulfords' diphtheria antitoxin and Pasteurs' antistreptococcic serum. Of these we have used all three to a certain extent in the army and all apparently have antitoxic properties, but the immunity produced is transient, lasting all the way from two weeks to three months. The experience gained by their use at Fort Riley showed the influenza antitoxin of Park, Davis & Co. to produce a longer immunity than the antistreptococcic serum.

The serums were all tried at different times upon horses purchased in the St. Louis sales stables and shipped to different army posts, but since these animals had, in most cases, the contagion of some one of these fevers within their systems at the time of injection, the test could not be considered a fair one, yet the results in each case seemed to denote that there was a material benefit derived. The animals which I had an opportunity of observing stood the shipment well, the cases were tardy in developing after arrival and in most instances mild in form.

At Fort Riley, we have upon two occasions used the serums to control outbreaks of influenza with very satisfactory results. The first outbreak in which we used the antitoxin was in the spring of 1907, when we injected about twenty young animals, which had not previously passed through any form of shipping fever, with antistreptococcic serum and about thirty with influenza antitoxin, the outbreak was immediately checked and we did not have any more cases develop under two weeks, then at different intervals several cases developed, five which received the antistreptococcic serum developed very mild forms of influenza, and later three which received the influenza antitoxin came down with a mild attack of the same disease.

In the spring of 1908 we had another attack of influenza, which threatened to severely cripple the Mounted Service School

and we injected seventy-four young horses, which had not previously been affected, with influenza antitoxin, and thus far only two horses have developed influenza or other forms of shipping fever and from two to three months have elapsed since the animals were injected.

Six private horses which were associated with the school horses were injected with diphtheria antitoxin and among that number not one case of fever developed.

Conclusion.—The results of our experience seem to be highly gratifying and I believe that there are many advantages derived by the immunization of young horses against these dreaded fevers. The advantages are as follows: if horses are injected before shipping into markets where the contagion is sure to be met with, it insures the dealer to almost a certainty that he can dispose of his animals before they are taken sick with shipping fever and thus insures him against the loss of some of his animals which if they are not injected is pretty sure to happen; if the animals are to be shipped it insures their reaching their destination before being attacked and should they have an attack after the immunity is worn off they are under better condition to withstand it than when weakened through shipment; in case of an outbreak under conditions whereby a business is liable to be crippled one can by injection of the well horses check its spread and save great loss by the increased work which the animals can accomplish. I believe with thorough disinfection and repeated injection that outbreaks can be thoroughly stamped out by the use of antitoxin.

The objections which might be raised is the expense incurred by repeated injections of a large number of animals, and also the short period of immunity produced, but if through its use we can save the life of two or three animals out of a hundred the expense is soon eliminated even without taking into consideration what a large firm might lose in the loss of work from animals being laid up with some form of shipping fever. The length of immunity usually carries the animal over the period

when the contagion is at its greatest virulence and then if the animal suffers an attack it is very mild, owing to the lessened virulence and the increased resisting power of the animal, the result of the antitoxin.

This is a subject which should concern the advanced men of our profession, since the majority of veterinarians concede that our future treatment of contagious diseases will be along the line of immunization.

This work is in its infancy and there is a great future for serums and serum therapy in both human and veterinary medicine.

A Lesson from Nature.—"Young gentlemen," lectured the eminent instructor, "you are old enough now to put away the childish and trivial amusements that sufficed for you when you were younger. Learn a lesson from the dumb brutes and even from the reptiles. When they arrive at maturity they comport themselves with a certain dignity."

"It isn't so with the rattlesnake, professor," objected the young man with the bad eye. "The older he grows the more rattle he plays with."—(*Chicago Tribune.*)

Petting a Horse.—"Not many people know how to pet a horse, from the horse's standpoint, at any rate," said a trainer. "Every nice-looking horse comes in for a good deal of petting. Hitch a fine horse close to the curb and you'll find that half the men, women, and children who go by will stop for a minute, say 'Nice horsey' and give him an affectionate pat or two.

"The trouble is they don't pat him in the right place. If you want to make a horse think he is going straight to heaven hitched to a New York cab or delivery wagon, rub his eyelids. Next to that form of endearment a horse likes to be rubbed right up between the ears. In petting horses most people slight those nerve centres. They stroke the horse's nose. While a well-behaved horse will accept the nasal caress complacently, he would much prefer that nice, soothing touch applied to the eyelids. Once in awhile a person comes along who really does know how to pet a horse. Nine times out of ten that man was brought up in the country among horses and learned when a boy their peculiar ways."—(*Exchange.*)

THE SIGNIFICANCE OF PATHOLOGY TO THE PRACTITIONER.

By A. T. Kinsley, M. Sc., D. V. S., Pathologist, Kansas City Veterinary College.

Presented to the Forty-fifth Annual Meeting of the American Veterinary Medical Association at Philadelphia, Pa., Sept. 10, 1908.

Pathology is the science of disease. It includes the etiology and pathogenesis (course, pathologic anatomy and physiology) of disease. Pathology, like some other subjects pursued by veterinary students, has advanced rapidly in the last few years. Veterinarians that graduated twenty years ago, fifteen years ago, and even ten years ago did not have the opportunity of obtaining a comprehensive understanding of pathology because pathologic knowledge was imperfectly classified, and an understanding of pathologic principles was not deemed essential in the education of veterinarians.

Veterinary practitioners' professional duties are primarily the prevention, treatment and relief of disease of the domestic animals. A thorough understanding of the normal structure and functions of the various organs of the animal body is a prerequisite to the comprehension of disease. Rational treatment is dependent upon a correct ante-mortem diagnosis of the disease. The underlying principles of an accurate ante-mortem diagnosis, regardless of method employed in obtaining the same, are the pathologic lesions and modified functions.

Ante-mortem diagnosis may be determined by a clinical examination alone, especially in those diseases having characteristic or pathognomonic symptoms as tetanus, spavin, etc. The diagnostician consciously or unconsciously notes the perverted function of the voluntary musculature evidenced in tetanic contractions in an animal afflicted with tetanus, and the abnormal osseous formation that alters the structure and produces pain during the activity of the tarsal joint in an animal afflicted with spavin. The recognition of the pathologic lesion is the basis of the diagnosis.

A correct ante-mortem diagnosis, in some cases, is obtained only by laboratory examination, as in lukæmia and follicular mange. Lukæmia is not distinguishable from Hodgkin's disease and lympho-sarcoma except by a microscopic examination of the blood of the affected animal. Follicular mange is so similar to eczema that it is necessary to demonstrate the presence or absence of the follicular parasite to differentiate the two diseases. Laboratory diagnosis is looked upon with considerable disrespect by some practitioners, probably because of their lack of knowledge of its importance. The laboratory is only an extension of a hospital ward, and a hospital ward is in reality a laboratory where the pathologic phenomena of disease can be more closely observed. Laboratory diagnosis is not necessarily a microscopic examination. In some pathologic diagnoses, as the examination of urine for albumin, all the apparatus required is an alcohol lamp or Bunsen burner, a few test tubes, and a bottle of concentrated nitric acid. The technique is simple; it requires only a moment's time; the reaction is easily recognized, and the presence or absence of albumin having been determined, the diagnostician has this additional information to aid in diagnosis. The presence or absence of sugar in the urine can be determined by the addition of a few drops of a 1 per cent. aqueous solution of picric acid to a small quantity of urine; a mahogany or carmine color indicates the presence of sugar; any other color indicates its absence. The hæmoglobin content is quickly, easily, and accurately determined by use of a hæmoglobin scale book, a book containing several sheets of absorbent paper and a color scale. This test can be made by a practitioner efficiently in one minute's time, and a knowledge of the relative percentage of hæmoglobin is of considerable value in diagnosis and also treatment.

In the ablation of carcinomata and soft sarcomata, the operator is often at a loss to know whether the entire growth has been removed. The following test applied to the dissected surface of the ablated tumor has been found quite reliable:

1. Wash the cut surface until all the blood has been removed.

2. Submerge the cut surface in 5 per cent. aqueous solution nitric acid ten minutes.

3. Wash in running water five minutes.

4. Submerge cut surface in methyl alcohol two to three minutes.

5. Examine cut surface with unaided eye to ascertain whether any tumor or glandular tissue is exposed.

The effect of the above method is to render all malignant tumor tissue and glandular tissue dull, and opaque, white and fibrous tissue is rendered gelatinous, translucent and homogeneous in appearance and somewhat india-rubber-like in consistency. Fat is unaltered. If dull, opaque, white spots appear on the cut surface of the ablated mass, more of the tissue must be dissected away.

The agglutination test for glanders is now at the command of practitioners. Inoculation of small animals, as guinea pigs and rats, may be resorted to in determining the specific infectious agent in an outbreak of an infectious disease. Thus the microscope is not essential for every pathologic diagnosis, and a laboratory diagnosis is not essential in all diseases, however its application is extensive, and a thorough knowledge of it is of inestimable value to veterinarians. Some pathologic diagnostic methods require so much time and apparatus that the successful practitioner can better afford to send the specimens to some pathologist for diagnosis.

Practitioners are frequently called upon to diagnose disease by post-mortem examination. Correct interpretations of lesions observed in post-mortem examination is certainly the application of pathologic principles or is applied pathology, and may be illustrated as follows: In the group of diseases designated septicæmia, soft tissues have a parboiled appearance and are hemorrhagic. Acute inflammation, regardless of its cause, is accompanied by loss of lustre, swelling, increased amount of blood in the affected area, and more or less tissue destruction. Chronic inflammatory disturbances result in proliferation of fibrous con-

nective tissue or fibrous hyperplasia. Granulomata are a group of diseases in which the principal lesion approximates granulation tissue, as in glanders, tuberculosis, actinomycosis, botryomycosis and epithelioma contagiosum. New growths or tumors are quite variable in their gross appearance, but there is little difficulty in differentiation of them from other morbid conditions by macroscopic examination. Sufficient concrete examples have been enumerated to indicate that a knowledge of pathology is absolutely essential in arriving at a correct post-mortem diagnosis.

The symptoms are suggestive of the treatment of disease, but the lesions are the only true guide to the rational application of remedial agents. When the lesions have been determined in a given disease, the specific reason why those tissue changes occurred should be understood by the prescriber. However, there is and probably always will be different interpretations of the existing lesions and the medicaments that will give relief to the same. Thus active pulmonary hyperæmia is treated by some practitioners with febrifuges and heart depressants, while a neighboring veterinarian claims equally good success in the treatment of the same condition with heart stimulants. Where is the discrepancy? The actual lesion existing is excessive dilatation and engorgement of the terminal capillaries of the bronchial veins. The practitioner that prescribes febrifuge and heart depressants to a horse afflicted with active pulmonary hyperæmia invites an extra amount of blood to the cutaneous tissue, thus diminishing the quantity of blood in the internal organs and in this way relieving the hyperæmia of the lung. In addition, heart depressants diminish the force of the heart and this tends to diminish the quantity of blood passing to the lung. If the cause of the active pulmonary hyperæmia was undue exposure in which the cutaneous vessels have been constricted, then the febrifuge is correctly prescribed. But if the active pulmonary hyperæmia is a result of irritation to the pulmonary mucous membrane, the febrifuge is contraindicated because the reaction of the mucous membrane in the production of an hyperæmia is nature's method

of neutralizing or overpowering the effects of the irritant upon the mucous membrane, and a heart stimulant is indicated to increase the activity of the heart and thus maintain the hyperæmia by sending more blood to the scene of action. From the pathological point of view all active hyperæmia and inflammatory disturbances should be treated by those means which will maintain the increased quantity of blood flowing into the affected part. Bier's treatment of disease consists in maintaining an excessive amount of blood in the diseased tissue by mechanical means. The foregoing is the same proposition except it depends upon physiologic and pathologic processes rather than mechanical interference. Œdema is usually a secondary condition due to depressed circulation, as valvular stenosis or insufficiency, obstruction of venous outflow, vasomotor neurosis or hydræmic blood. Efficacious treatment depends upon the specific cause of the œdema, *i. e.*, the prescriber must know and understand the existing pathologic condition to successfully treat the case. Fever is an excessive high temperature, a result of disturbance in the thermogenic or thermo-regulating nerve centres produced by toxins or metabolic tissue products. The proper treatment for the relief of fever, from the pathologic viewpoint, would depend upon whether the fever is the result of nervous influences producing cutaneous disturbances and failure of radiation or dissipation of heat, or whether it is the cause of excessive oxidation in the tissues. The treatment of fever must be combative, for this process is not, like active hyperæmia or inflammation, a protective action, but is destructive and injurious.

Prognosis of disease is of considerable moment, and many practitioners have gained an enviable reputation by accurately foretelling the outcome of disease. To give the prognosis of a diseased condition requires an understanding of the existing lesions and a knowledge of the termination of those lesions. If a practitioner examined an animal with a swelling in the region of the withers and prognosed a speedy recovery, his prognosis may be correct if the swelling was inflammatory, but if the swelling was sarcomatous his prognosis would probably be incorrect.

In the preceding an attempt has been made to show the importance of pathology and its relation to the practice of veterinary medicine and how practitioners may readily confirm their clinical diagnosis by pathologic tests. It has been indicated that a pathologic knowledge is the sheet anchor for accurate diagnosis, both ante-mortem and post-mortem, macroscopic and microscopic, for rational treatment and for correct prognosis.

We predict that the practitioner of the not far distant future will be employed to prevent disease in the domestic animals, his financial reimbursement being proportional to the degree of success he has in the prevention of disease; each sick animal in his charge will mean a deduction from his income. When this time comes the practitioner will be of necessity a pathologist, and will determine the hæmoglobin content and the opsonic index as readily as he now determines the character and frequency of the pulse.

Troubles of the Inanimate.—"Tough old world, this," sighed the anvil. "I get nothing but hard knocks all day long."

"Yes," assented the bellows, "and I am always hard pressed to raise the wind."—(*Boston Transcript.*)

Veterinary Directory of Illinois.—The Board of Live Stock Commissioners of Illinois has issued a very useful little book of 115 pages, neatly bound in leather, containing a revised list of the veterinary surgeons licensed to practice under the terms of an act entitled "An Act to regulate the practice of veterinary medicine and surgery in the state of Illinois." It also contains the names and addresses of the members of the Board of Live Stock Commissioners, Board of Veterinary Examiners, State Veterinarian, Secretary, and a copy of the Veterinary Practice Act of Illinois.

Two divisions of licensed veterinarians, an alphabetical one and one of veterinarians by counties, are included in the directory. The name, post-office address, county, and kind of license, whether graduate or non-graduate, are given. The name of the college is stated in case of graduates. The directory contains 1,289 names, of which 656, or something over 50 per cent., are graduates.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

INFECTIOUS ANEMIA OR SWAMP FEVER.

By G. H. Acres, V.S., Sudbury, Ontario, Canada.

I have just read Dr. Mohler's very interesting article in the November Review on infectious anemia, typhoid fever, also called swamp fever and other names. I have seen and treated a number of horses suffering from this disease during the past eight years, and have found it prevalent in both North and South Alberta, the Yukon Territory and Northern Ontario. The symptoms, causes, etc., described by Dr. Mohler are so well given that I will not repeat them. I would like, however, to draw your attention to my latest method of treatment of the above, and the results obtained; also my theory of infection.

I believe that this disease is found only on low-lying and swampy pastures, where the water becomes stagnant during the hot months of the year. I have never seen an outbreak of this disease caused by putting a diseased animal in a stable with healthy horses, but I have seen horses feeding on high, dry pastures, with good water, contract the disease in this way: A diseased animal turned out in said pasture with healthy horses, expels the germs which are excreted in the faeces of the diseased animal, which germs again become virulent after coming in contact with the ground, particularly if the weather is at all wet, and healthy animals grazing in the immediate vicinity become infected.

Regarding the treatment of this disease, I have always been very careful about feeding, and give little or no hay; green food if procurable, but very little; plenty of fresh water and warm bran mashes; small amounts of boiled oats. My reason for this is that I believe the germ is situated principally in the intestines, and in order to secure good results from internal antiseptics, the intestines should be practically empty. I think a little exercise every day, if the animal can take it, is good. I have treated sev-

eral cases near here within the past few months, and have obtained the best results with the following treatment: When the first case was observed, the men in charge were instructed to watch the remaining animals very carefully. Immediately, one refused its feed, and appearing sick, was at once put in the stable and treatment commenced. In this way, they were caught in the early stages; medicinal treatment was as follows: 2 drachm doses of Liquor Cresol in a pint of water, four or five times daily; if the animal is very weak, grain doses of strychnine three times daily are beneficial. The following was given three times daily in a bran mash: Potassium-chlorate, ½ oz.; Antifebrin, 2 drachms; Ferri-sulphate, 1 drachm. In cases where strychnine was not being given, nux-vomica was added to the above. I have tried quinine sulphate, potassium iodide, iodii resub, arsenic, hydrochloric acid and other drugs, but obtained the best results from the antifebrin treatment. The animal, however, is generally subject to several relapses which none of the drugs abovementioned seem to prevent. This occurred in the cases which I have been treating recently; so frequent were the relapses, that I despaired of the recovery of the animals. The first case brought to my notice was so far gone that she died after the third relapse. Five remaining cases did well, excepting for the continued relapses. I then decided to try Antistreptococcic Serum. I obtained an ounce vial of this, and injected the contents hypodermically into a bay mare, which had just recoverd from her second relapse, and had been under treatment about three weeks. For two days following the injection, the liquor-cresol was continued, with light diet. On the third day the former was stopped, and exercise increased daily. In two weeks more, she was put to work in a logging camp, and is doing very well. Two more animals were then injected; one had been suffering for six weeks, and had had four or five relapses; the other had been sick about four weeks, and had had three relapses. The injections were made when the temperature was near normal. The second case was a very bad one, but after the serum, he made a rapid recovery, and is now working every day. The other animal had a relapse and eventually died. There remained two cases yet, both of which had been sick for over two months, and had had so many relapses that hopes for recovery were given up. One horse made a splendid recovery, and is now doing light work and rapidly gaining in flesh and strength. The other, a few days after the injection, de-

veloped lymphangitis in the foreleg, with a temperature of 105° F. In the course of a few days, the temperature became normal, but the leg remained enlarged and painful for several days. I communicated with Parke-Davis & Co. regarding the serum treatment, and they kindly sent me a dose of serum to try on this last animal, which I did about a week ago. This was two weeks after the first injection, and at this time he was very weak, and unable to move. The animal is now able to be exercised, and appears to be making a good recovery. I believe that if one or more doses of this serum were given to the animal during the first symptoms, or at the end of the first attack, a perfect recovery would follow, and the utility of the animal would be restored. So far, I have only injected the serum when the temperature was near normal. Under the medicinal treatment, few of the animals which did recover were able to do any work, and were continually subject to relapses. I think it would be well worth while giving this serum treatment a thorough test, but at the present time, it is too expensive for private experiments, although I am sure any practitioner who has had any experience with this disease will realize what a great help it would be if it is proven conclusively that the antistreptococcic treatment is reliable.

A short time ago, I sent a sample of blood drawn from one of the above-mentioned cases to the Biological Laboratory at Ottawa for analysis, and was informed that the germ influenza was very prevalent under the microscope. They are now making cultures, and I expect to receive further information shortly. From the clinic, no symptoms of influenza were to be observed, excepting the high temperature and labored breathing, which we have in most forms of fever. The blood obtained formed a solid clot shortly after extraction, and only a small portion remained red, as described in Dr. Mohler's article.

If any readers have had any experience with this serum treatment, I should be very glad to hear from them.

NEW LIGHT UPON NYMPHOMANIA IN THE MARE.

By Mark White, V.M.D., Denver, Colorado.

We are all aware of cases of nymphomania in the mare due to ovarian diseases and inflammation of the vaginal mucous membrane and clitoris, but I have something new.

My attention was called to a fine mare that had been a sufferer of nymphomania for over two years, without any improvement. My course of examination was first to pass my hand in the rectum and feel the ovaries, to ascertain if there was any enlargement of the organs. I found that the ovaries were normal in size and had a normal feel. So I informed my client that the trouble must be elsewhere and that it was not a case, in my judgment, for ovariectomy. Next I examined the vaginal membrane and the clitoris and I found that the sack-like gland of the clitoris (which has for its function the manufacturing of sebaceous lubrication material) filled with a calcarious material to its utmost, imprisoned so it could not get out. So I curetted out this material, which reminds one of the "bean" that we often remove from the gland of the horse's penis when washing the sheath.

Here is the important point that should be of much value to the practitioner when dealing with these cases. This calcarious deposit had laid in this gland of the clitoris for years and acted as a foreign body setting up irritation and creating much inflammation of the organ, followed by excessive passion, stimulation and symptoms of nymphomania.

The important lesson taught by this case is that many mares have suffered their ovaries to be removed unnecessarily; that most or a large per cent. of cases of nymphomania of the mare are due to nothing more than the filling up of this gland of the clitoris. We know how annoying to the dog it is when the Anial glands (which are sack-like) become filled up with sebaceous material and almost run the dog mad. This same gland situated on the horse's penis, no doubt causes considerable annoyance to the animal, when the so-called "bean" forms.

It is quite possible that some of the profession are in possession of the knowledge that I have only just gained pertaining to nymphomania in the mare, but I must confess that my education and experience has not afforded me such knowledge. So if I have not told the profession anything that is new to them, I most modestly beg their pardon for my presumption. The practitioner often meets diseases and important conditions of animals that are entirely new to him and foreign to his education and text books, but he is too modest to report such cases to the profession, for fear that he has not come across anything of interest, and would only be exposing his own individual ig-

norance, if he should report such cases. For this reason many veterinarians are in possession of knowledge of great interest and value to the profession, that will go down with them into their graves.

Do not be too quick to remove the ovaries of the mare.

TALLIANINE AND PHENOL TREATMENT IN TETANUS.

By J. Fergus Donnelly, V.S., St. John's, Newfoundland.

On September 25th a client of mine brought one of his horses to my infirmary, wishing me to have a look at him, and also stated that he seemed rather stiff in his action.

Upon examination of the animal I noticed that he was developing tetanus, and ordered him to immediately take him home and I would go and see what could be done for him. Upon arriving at his stable I found the animal in question showing well-marked symptoms of this disease, and upon examination found both knees cut, the skin covering the head of the Humerus badly torn, and anterior to the angle of the "Ilium" another abrasion which had a scab formed.

Questioning the owner relative to the history of the case, I was informed that another horse kicked and knocked this one down some time ago, and it received the above cuts.

I told him that the horse had tetanus, and I was very much afraid that nothing could be done for him, but that there was a new treatment now being used and if he wished I would try it. He seemed perfectly satisfied, as only a month previous he had paid $200 for him. I began my treatment as follows:

First I placed the animal in a dark place away from all other horses and gave strict orders that no one was to go near him, only the man in charge, and he was to be very careful when approaching or working about him.

I then plugged his ears with cotton wool, and opened up all the cuts, having to dissect a large piece of the muscle from the shoulder, which I then treated with a 5 per cent. solution of Phenol, and applied Ac. Borasic after.

I then gave him 30 c.c. of Tallianine intravenously, and ordered ½ ℥ Phenol to be given in his drinking water twice a day.

The animal could eat and drink fairly well, but was very stiff, and the Membrana Nictitans was about two-thirds over the eye and tail erect.

The following day I again gave 20 c.c. Tallianine and the usual dose of Phenol.

I continued this treatment for 4 days when I reduced the dose of Tallianine to 10 c.c. and then stopped its use, but continued Phenol for 8 days after, when all symptoms had disappeared.

I then placed him on tonics and about one week later he was hitched and used a little in the mornings, and to-day he is hard at work and looking much better than before his attack.

PERSISTENT HYMEN.

By M. Page Smith, D.V.S., Washington. D. C.

On October 14, 1908, a sorrel mare was sent to the Hospital of the United States College of Veterinary Surgeons, for examination.

This mare is owned by Mr. James S. E. Maddox, of Warrentown, Va., and is valued at $5,000. She is a sorrel, about 2½ years old.

About eight months ago the owner noticed a membraneous sac protruding between the lips of the vulva, after each act of micturation. Owing to the value of the mare, the owner became alarmed and sent to this city for a veterinarian. She was examined by several veterinarians, all of whom said that there was a rupture of the vaginal wall, allowing the bladder to pass up into the vagina. They said the mare could not be operated on and would never breed.

Dr. Harry W. Achisen was called in later and ordered the mare sent to the Hospital.

On October 15 I examined the mare and found that by pressing firmly on the so-called tumor, that it reflected back into the vagina, forming a curtain, attached all around its edges. The meatus being on the floor just posterior to it. This curtain was nothing more than a persistent hymen, very much thickened and entirely imperforate. Behind the hymen was a quantity of grayish-colored thick fluid which pressed the hymen out and gave it the appearance of a cyst.

A consultation was held by Drs. Robinson, Achisen and myself. We decided that the case was very simple and only required a rupture of the membrane, and the removal of a portion of it.

When the first incision was made about a quart of the thick grayish fluid flowed out. After the operation the vagina was flushed twice daily with an antiseptic solution, and on October 25th the mare was shipped home, ready to breed.

SUBPERIOSTEAL FRACTURE OF THE METATARSUS.

By Prof. L. A. Merillat, Chicago Veterinary College.

Subperiosteal fractures (fractures without displacement) occur occasionally in the extremities of horses, but it is usually the tibia and the radius that sustain this injury. A kick on the internal face of the tibia or the anterior face of the radius just above the carpus is always looked upon suspiciously by the knowing practitioner, for what at first seems to be only a simple abrasion of the skin often proves to be a serious fracture of the bone by the sudden separation of the broken segments two or three weeks later when the inflammation by softening the periosteum allows the fragments to collapse.

The writer has recently observed a case of this character on the metatarsus. The subject—a horse—received a kick on the antero-internal part of the lower third of the metatarsus and after three days' rest returned to work still slightly lame but able to withstand the ordeal of drawing his share of a large truck. The claudication, however, increased from day to day and at the end of fourteen days the horse was thought too lame to work. A few days' rest restored him to apparent usefulness —the lameness had again disappeared. On the morning of the eighteenth day when the teamster entered the stable expecting to hitch him into the team the leg was found dangling from a compound, oblique fracture of the metatarsus, and for the first time realized that the apparently trivial abrasion of the skin was in reality a serious injury that had fractured the bone.

SUCCESSFUL TREATMENT OF PURULENT SYNOVITIS.

By R. W. Gannett, D.V.M., Newark, N. Y.

While I was House Surgeon at the Berns Veterinary Hospital, Brooklyn, N. Y., Dr. Berns removed about three inches of the flexor pedis perforans tendon at the hock in a desperate case of suppurating tendon sheath. Opening the sheath freely, disinfection having proved of no avail. Recovery followed in a comparatively short time. There was a certain amount of lack of control of the foot when off the ground, but no lameness.

Recently I was called to see a mare which had sustained a severe kick on the outside of the hock. Splinters of tibia were removed. The flexor pedis perforans synovial sheath was found open and infected. The animal was very lame. Temperature 103° F.; no appetite. The leg was swollen considerably.

Treatment.—The sheath was laid open for about four inches on the outside of the hock and for about three inches at its lower portion on the inside of hock. A quantity of pus and synovia escaped. Tincture of iodine and 2 per cent. carbolic solution were injected faithfully for three weeks. Meantime, the patient was growing steadily worse, being scarcely able to stand with the aid of slings, and when down was unable to arise. After guiding the probe-pointed bistoury into position through the outer opening I severed the tendon, but removed none. Pain and fever ceased, in two or three days, appetite returned and an uneventful recovery took place in about four weeks. There is the same swinging or lack of control of the corono-pedal articulation when the foot is off the ground; but no lameness at farm work.

RELAPSE AFTER APPARENT RECOVERY IN AZOTURIA CASE.

By Mark White, V.M.D., Denver, Colo.

Horse attacked with azoturia 2 p. m.; apparently well at 6 p. m. and no signs of any physiological disturbances, walking normal, and muscles of hind quarters soft and normal in size. 7 a. m. the following morning horse again showing typical symptoms of azoturia, stiff in hind legs, and paralyzed in near

fore leg. When attempt was made to turn horse around he fell to the ground, apparently giving away and falling to the front. On examination I found great toxic disturbances with paresis of the hind legs, urine slightly discolored, which showed great discoloration the day before. The horse received a good physic during the night and was able to make his urine from the first. This horse lived until the second night following, being placed in a sling and let down as often as he showed discomfort.

The point of interest in this case is the long period of time which elapsed before the horse went down, the paralysis of the front leg and the apparent recovery and re-attack when the bowels and kidneys were all well opened, the gluteal muscles normal and soft.

Food for Squirrels.—Most people who feed the gray squirrels in the big parks fail to realize that it is no kindness to give these pretty little animals such soft shell nuts as almonds, peanuts and chestnuts. Human beings who do not have to actually forage for food naturally enough feel that it is thoughtfulness itself to save the squirrels work. The fact is, however, that a squirrel's teeth grow so rapidly that, deprived of their normal use, they might even through their very uselessness become long enough to put this charming rodent of the trees in danger of starvation. Hickory, pecan and hazel nuts are the proper food to throw to the squirrels.—(*Exchange.*)

Taking Their Temperature.—For three days on a transatlantic cattle steamer, with passenger accommodations, Mrs. Billings had been endeavoring by persistent and continuous questionings to obtain some ideas as to nautical proceedings, and the other passengers had about reached the end of their patience.

"Well," remarked Miss Talbot at dinner as she passed the salt, "I am glad to find that they treat the cattle so humanely on board. Why, they take the temperature twice a day regularly."

"Oh," cried Mrs. Billings in a high, piercing crescendo, "do they really? I'm so glad to hear it, but I shouldn't think they could very well."

"Why not, madam?" inquired an elderly man on her left.

"Well—well, why," said Mrs. Billings, "I should think that it would be hard to keep a clinical thermometer in a cow's mouth long enough to get any temperature without having it crushed."—(*Youth's Companion.*)

ARMY VETERINARY DEPARTMENT.

WHAT BENEFIT CAN WE DERIVE FROM THE GENERAL STAFF BILL?

In response to the above query, coming to me from different army colleagues, I gladly quote Sec. 4 of the Bill: "That "the veterinarians appointed under this act shall be on the same "footing as commissioned officers of the Army as to tenure of "office, retirement, pensions and increase of pay, and in all re-"spects shall be governed by the rules and Articles of War as "are commissioned officers of the Army."

Remember that we are mortals, and that the following "honor-roll of our dead" comprises all young men except one: 1. Dr. Albrecht Heusinger (Germany) 7th Cavalry, killed by the Sioux in Yellowstone Valley, 1873. 2. Dr. Samuel Going, M.R.C.V.S., 1st Cavalry, killed in the Nez Perces War, 1875. 3. H. Humphreys, V.S., 2d Cavalry, died from wounds, 1885. 4. M. J. Treacy, M.R.C.V.S., 8th Cavalry, died from yellow fever, Cuba, 1899. 5. Dr. Samuel Gelston, 3d Cavalry, insane from sunstroke and bolo cut over head, disappeared, Philippines, 1901. Dr. Paul Gettler, Q. M. Department, died from abscess of liver, P. I., 1901. In addition we lost from time to time, a number of capable men, who resigned as unfit for further military service to save their lives, some of whom have long since gone to eternal rest; while others, still living, are reminded by continuous pain of hardship and perils undergone. We were never more than twelve up to 1899, and not more than eighteen as late as the Philippine campaign. Figure the percentage of loss and reflect. Even now we have "our own four," of whom one has only one leg and the other three are physical wrecks from amoebic dysentery, and for whom we seek the "amendment" to this Bill. As for the dreaded section which "eliminates," this will be found in any other veterinary Bill.

No further comment is necessary, as I do not want to preach a sermon. But I am pleased with one cool-headed young man among us, who writes me: I shall favor this Bill when the time comes to consider it. "At present I want a change in our status, *and want it quick*." I second this common-sense motion.

O. S.

A NEW PUBLICATION OF THE VETERINARY DEPARTMENT, BRITISH ARMY.

A book of special interest to our army veterinarians and entitled: "*Animal Management.* 1908. Prepared in the Veterinary Department, for the General Staff, War Office," has recently been published. The contents are as follows:

I. Animal structure and function. II. The points of the horse, colors, markings and age. III. Stable construction and fittings. IV. Stable management, grooming, washing, clipping, clothing, methods of securing, bedding, stable tricks and vices, daily routine. V. Foods, feeding and watering. VI. Management of horses in the open, condition and exercise, marching, feeding, swimming, watering, picketing. VII. Saddles and sore backs, collars and sore shoulders. VIII. The foot and shoring. IX. Transport by rail and sea. X. The mule, donkey, camel and ox. XI. The prevention and first aid treatment of disease. Plates of grasses, herbage and weeds, are added in a pocket.

It is impracticable to fully review this book, consisting of 370 pages of closely printed matter and liberally interspersed with fair wood-cuts. Briefly, it may be stated, that it is evidently intended for officers of the mounted service of the British Army, because it is elementary, avoiding technical terms in the text and explaining subjects that are familiar to every graduate of a veterinary college. Yet, there is also a mass of matter that is more or less unknown to the young veterinarian who enters the army service, because it cannot be taught in a college that does not make a specialty of training veterinary students for the army. The novice in this service, after reading the book, will feel that he knows something of what will be demanded of him, and he will be spared many of the painful pitfalls which he prepares for himself either by his own overwillingness or by his ignorance of the real object in view. The more experienced army veterinarian will find, every now and then, subjects touched upon which remind him of the hours and days spent in anxious study, in close observation or experiment to discover for himself the secrets that are here nicely laid bare. Three chapters are of special merit. That one "saddles and sore backs, collars and sore shoulders," is a masterful exposition of the subject, the best I have read in English, French or German. "The mule, donkey, camel and ox," explains much that we were trying to learn in our Philippine campaign when the "carabao and the

zebu trotting bull" were burdened upon us as new charges, thousands of them being used for transportation by our Quartermaster's Department. The book commends itself generally for its simple, lucid style, and furnishes most entertaining reading for several evenings.

There has never yet been written a book on "*Military Veterinary Science,*" one that is intended for veterinarians only, a truly scientific book that no army officer would care to read. It is very desirable and necessary that these officers should know something of our science, and the more they know the better they co-operate with us in the practical ends to be attained. Yet, the subjects of military veterinary hygiene, military veterinary surgery, military veterinary history, etc., have all been separately treated in a scientific manner by English, French and German veterinary officers, and it would seem that the time is on hand when all these subjects could be gathered together into one comprehensive, technical treatise, and we would encourage our British Army colleagues to make an attempt.

In the meantime, we heartily approve of this book and recommend it to our army veterinarians. It is for sale by: Wyman & Sons, Fetter Lane, London. Price: One shilling and sixpence. Perhaps it can be had through W. R. Jenkins, 851 Sixth Avenue, New York City.

OLOF SCHWARZKOPF.

THE only serious and formidable thing in nature is will.—(*Emerson.*)

SIXTH SENSE IN BIRDS.—In the animal kingdom the birds seem to be really the class most highly favored by nature. Though they are not placed near the summit of the line of evolution, their ability to fly marks them off as having some advantages over nearly all the mammalia. Their mysterious power of changing their polarity or weight in order to dive in water or soar in air has been often discussed, and the almost incredible velocity of their motion when migrating, sometimes amounting to four miles a minute for vast distances, has no parallel among other animals. In addition, experiments with carrier pigeons at night demonstrated beyond doubt that these birds at least possess a highly developed sense of direction.—(*New Century Path.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M.D., V.M.

Sarcoma of the Liver [*E. Wallis Hoare, F.R.C.V.S.*].—A twelve-year-old Irish terrier dog has since a week an extensive enlargement of the abdomen, but until then has always been in good health. He is much emaciated, the abdomen is not painful, ascitis is evident and a solid enlargement is also felt in the abdomen. Tapping on the median line is not followed by escape of fluid. This operation performed in various places is again without result. No sickness is manifested by the animal, nor pain but the enlargement of the abdomen seems to increase. The dog is found dead one morning in his kennel. On opening the abdomen a tumor was found attached to the spleen and another on the mesentery. There was a large amount of fluid in the abdominal cavity; dark-yellowish in color. The liver resembled an enormous tumor with irregular nodules on its surface. These were whitish in some parts and of a marbled appearance in others. The whole organ weighed five pounds. The neoplasm was a typical spindle-celled sarcoma.—(*Veter. News.*)

Doubled Telescoped Intestine Accompanied by Twist [*H. Thompson, M.R.C.V.S.*].—A foal is found very ill one morning. He was a colt, twelve weeks old, running with his dam in a field. That morning he was found lying on his back, propped up by a fence. Pulled away, he jumped up, but laid down again, assuming the same position, on his back, when he seemed to have much relief. Notwithstanding treatment, he dies in four hours. Post-mortem revealed a beautiful twist of the intestine, one portion of the gut overlapping the other in form of a half knot. On examining this part, it was found to be telescoped and that the invaginated portion measured six feet and two inches in length and besides this, the latter part of this telescoped portion was doubly telescoped to the extent of two feet and 2 inches.—(*Veter. News.*)

Cold Water Treatment for Open Joints [*H. Thompson, M.R.C.V.S.*].—A horse got his legs entangled in some barbed wire and received an extensive jagged wound in front of the bend of the hock. The synovial bursa was torn and synovia escaping freely. Following his usual form of treatment in similar cases, cold water irrigation was applied continuously for a week and then stopped, when the wound was filled with healthy granulations and synovia had ceased to run out. In about two weeks all lameness had subsided and the wound dressed with iodoform, charcoal and pulverized sulphate of copper to keep the granulations down.—(*Veter. News.*)

Some Examples of Malignant Disease in Animals [*J. Burton Cleland, M.D., Western Australia*].—These examples of cancerous conditions show the widespread geographical distribution of such diseases.

Carcinoma of the Breast of a Lioness.—Found in an animal that died in the zoological garden of Perth, at about the age of ten years. In the lower part of the breast there was a hard dense scirrhous mass about the size of the palm of the hand. The right sublumbar gland was enlarged. There were numerous secondary growths in the lungs, liver, spleen and omentum. One of the kidneys was also diseased.

Carcinoma of the Udder in a Dairy Cow, large scirrhous-looking mass in the udder and secondary deposits in the iliac and sublumbar glands.

Squamous Epithelioma of the Perineum of a Cow, a large cauliflower like papillomatous mass projected from the perineum, firm with some yellowish granular areas.

Epithelioma Growing from the Conjunctival Surface of Lower Eye-Lid of a Horse, Displacing the Globe. Probably originated in one of the gland appendages of the skin.

Alveolar Sarcoma of the Mediastinum in a Bullock. A big lobulated mass as large as an infant's head, covering the base of the heart to the left side and in front of the auricles and large vessels. On section it was moderately firm with scattered extravasation of blood.

Carcinoma of Supra Renal Glands of Sheep. The right supra-renal gland was enlarged, rounded, white, hemorrhagic and adherent to the kidney below and to the liver above. There were some nodules in the liver and in both lungs.—(*Journ. of Comp. Pathol. and Therap.*)

Case of Ataxia in a Horse [*Capt. Jolliffe, M.R.C.V.S.*]—After being ridden some distance, to reach a certain place, a horse is found seriously ill, he is extremely exhausted and walked back to his stable with great difficulty, supported on either side. His weakness and exhausted condition with high temperature and a rusty nasal discharge justified a diagnosis of influenza for which he was placed under treatment. He rallied and was progressing favorably when towards the 14th day after the attack, all signs of constitutional illness having disappeared, he showed loss of co-ordination of the muscles of the legs and a consequent ataxic gait. He walked with his hind legs apart, in a marked ataxic manner. The legs were raised unnecessarily high. The tail was weak and could be raised without resistance or difficulty. The forelegs also seem to be unsteady but not as much as the hind ones. Covering of the head and eyes increased the amount of ataxia and the horse had great difficulty in turning, and the unsteadiness was greater. No alteration in the sensations could be demonstrated. The knee and ankle jerks could not be obtained. The sphincters were normal. Although the general condition was good, all the treatments used having failed (iodide of potassium, biniodide of mercury, strychnine counter irritation, etc.), the animal was destroyed. At the post-mortem, nothing could be detected in the spinal cord and brain, except when the specimens were stained by the Marchi's method, when various degrees of degeneration were found in the posterior columns and in the anterior tracts. The specimens were taken in mid-thoracic region, upper cervical and lumbar.—(*Veter. Jour.*)

Two Interesting Cases of Tuberculosis [*Prof. F. Hobday, F.R.C.V.S. and E. Belcher, M.R.C.V.S.*].—1st Case: In a five-year-old bulldog; has never been ill, never run out in the street, had no possibility of heredity from its family, had as a rule never had any milk, lived on meat cooked in the house, no members of the family where he was had been known as consumptive. The manner he was infected remains a mystery. His coat was harsh and staring with an unpleasant smell. Occasionally he seemed to have "heart pains," breathed heavily. Auscultation of the heart gave muffled sounds; pulse irregularly intermittent. Nothing definite is arrived at and at the request of the owner the dog is killed. Post-mortem: Pericardium much thickened, and adherent to the heart in several places. Fibrous

tumors, not caseous, exist in the muscular heart structure; they are irregular and flattened. Over the left auricle, there is a sac formed by the pericardium, whose inside is studded with tubercles, distinctly caseous. There were also nodules in the spleen and the mesenteric glands. The case was one of tuberculosis.

2d Case: Female cat had a swelling in the parotid lymphatic glands, which was treated as an abscess. After a while, the submaxillary gland, then the prepectoral and finally the precrural became enlarged. The cat was destroyed as suspect of tuberculosis. At autopsy, scarcely any organ could be found which did not contain tuberculous lesions. The pleura, the lungs, thoracic and abdominal lymphatic glands were all full of caseous tubercles in which the microscopic examinations revealed large number of bacilli.—(*Veter. Journ.*)

Destroying a Dog with Morphia [*Henry Taylor, F.R.C.V.S.*].—A dog was, at the owner's request, going to be destroyed. The author injected sub-cutaneously 4 and ½ grains of morphia which he followed by 4 more a few minutes later. In fifteen minutes after the dog received 8 grains more through the right intercostal region into the lungs. The animal was in deep sleep but did not show any indication of dying soon. Then every ten or fifteen minutes doses of 5 and 6 grains were given until not less than 45 grains had been administered. At last convulsions followed by coma took place and the dog died, but not until an hour later.—(*Veter. Journ.*)

Ruptured Colon and Old-Standing Pericarditis [*C. Powell, M.R.C.V.S.*].—Five-year-old gelding had colic and as he gets worse the author is called and finds the horse in great pain and restless. Temperature is normal, there is slight tympany, the mucous membranes are rather pallid. The most noticeable feature of the case is the distressed character of the breathing, which is accompanied with an haggard expression of countenance very peculiar. Respirations were quick and short, nostrils dilated, pulse quick, small and irregular. Sounds of the heart seemed very muffled in character. Lungs normal. Purge, stimulants and enemas are prescribed with chloral to be given as needed. Next morning the horse seems better. Another examination reveals the same condition as before. Temperature has risen two degrees. Later the body gets covered with cold, clammy sweat. The horse dies. At the post-mortem there was found lesions of

acute peritonitis with a rupture of the colon. And, on opening the chest, the heart was seen adherent to the right side of the chest wall, by adhesions which existed between a large portion of the surface of the right ventricle, the pericardium and two ribs, which had at some previous epoch been fractured; the ragged ends piercing and lacerating the pericardium and also the heart itself as evidenced by an old cicatrix.—(*Veter. Journ.*)

Cases of Chorea in Horses [*Joachim Da Costa, C.B.V.C.*]. —No. 1. Brown country-bred entire, six years, very spirited, worked on a sandy road, dragging with his mate for a distance of four miles, a wagon that had one of the wheels stuck fast. As a consequence, he was all in a perspiration, very tired, and in being unharnessed he fell on the ground in a semi-conscious state. Stimulants, hand-rubbing, etc., brought him to and in a few hours he seemed alright. The next day, he began pawing his forefeet and showed soreness on the slightest pressure on the shoulders. On the third day he had an involuntary spasmodic contraction of the levator humeri muscle. Spasms coming on at intervals whilst standing, walking and lying, or again by raising the head, frightening the animal or touching the sore parts. The general condition was otherwise good and the temperature normal. Electuaries of belladonna and camphor were given for a week. Spasms and pawing stopped but returned after four days. Same treatment for one week longer gave the same results. Then to the electuary treatment, full doses of bromide of potassium and bicarbonate of soda were added, bringing a good permanent and satisfactory result.

No. 2. Bay colt, three years old, was forced to run with his mother for a long distance and in state of perspiration was given a wash in a river. He refuses his food, shivers and is treated by the owner. Soon, however, he is taken with sudden involuntary contractions of the abdominal muscles. The spasms are seen far from him, flattening the abdomen each time and a sudden gush of air felt at the nostrils synchronous with the convulsive movements of the abdomen. The animal was submitted to the same treatment as the preceding, camphor, bromide and bicarbonate, and recovered in a little over two weeks.—(*Veter. Record.*)

FRENCH REVIEW.

By Prof. A. Liautard, M.D., V.M.

Treatment of Toe Cracks by Twisted Sutures of the Wall [*Mr. Mouilleron*].—This treatment is only indicated and can only be applied to animals which have been operated by the classical method by the thinning process or again in those when after a complete operation, the cicatrization of the soft tissues is complete and already protected by a thin layer of new horn, and when the repair is sufficiently advanced to avoid all secondary infection. The object of the treatment is specially to favor the cicatrization in immobilizing the foot and to avoid the annoyance of ordinary protecting dressings which in time promote atrophy and contraction of the foot. The treatment is as follows: On each side of the thinned surface, beginning as near the coronary band as possible, four nails are driven through the thickness of the wall as in the method of treatment called "barring of the crack," and when the point of the nail appears on the level with the thinned portion of the wall, the other point of the nail, which is the head, is cut off a short distance from the point of implantation. A pad of oakum or wadding with hoof ointment, tar or like ingredient, is laid in the hollow of the front part of the hoof and a solid malleable wire is passed in figure 8 style round the first, then the second nail and so on, as is the thread, silk or wire used for twisted suture. The ends of the two wires are twisted together and cut short. The dressing can remain for months before it needs to be renewed. Claims of the author: It gives complete immobilization, preserves the integrity of the foot, prevents deformity and removes all danger of contraction. It reduces the indisposition of the animal to its minimum, gives a perfect solid dressing and is unusually easy of application.—(*Bullet. de la Soc. Cent.*)

Diabetes in Animals [*Mr. Bru*].—The author relates his observations of this disease in two cows and three dogs.

In the first cow he has noticed that the disease progressed very rapidly and that all treatment was entirely useless. In one cow there was no polydisy but frequent efforts for micturition with evacuation of only a small quantity of urine. In the other case the animal drank with avidity and always a large

quantity of fluid, and when returned to her stall she would frequently, after a few moments, stretch herself to urinate and then expel only a very small quantity of urine. In neither of these two cases were ocular manifestations noticed. Both animals died in a very short time. In the observations of the dogs, one had great thirst and was blind in both eyes by cataract. In another there was evacuation of large quantity of urine, reddish in color. There was also loss of sight, no polydisy. In the third was noticed great thirst, abundant urination and difficulties of sight. The march of the disease in dogs is relatively slow, animals can live awhile but the troubles of the sight render them useless.—(*Rev. Veter.*)

Dental Abnomalies [*M.M. Bourdelle and Darnaud*].—Among dental abnomalies, some are characterized by the presence of one or several teeth being implanted in the bony structure of the palate. Palatine teeth, as they are called, are the object of the two following records. In one the abnomaly consists in two second dentition incisives (nippers) situated 4 or 5 centimeters back of the incisive arch, which is otherwise perfect. These abnormal teeth are resting side by side, on each side of the median line, implanted vertically in the palatine roof. They are well formed, with an external dental cavity and resemble perfect teeth of second dentition. At the time the animal had them, they did not seem to disturb him, but later they may and will have to be pulled out. (Why wait until then?)

The other case was observed in the upper jaw of a sheperd dog in which existed a strong palatine canine implanted obliquely and transversally from right to left in the palatine roof back of the incisive openings. It was no doubt the left canine which in developing made its way out of its ordinary location. In other words, teeth may be truly supernumerary teeth as in the first case or again teeth which are displaced from their ordinary location. —(*Rev. Vete.*)

Temporo-Maxillary Suppurative Arthritis in a Cow [*Mr. Bonnet*].—About a week after a normal delivery and cleanings, a cow cannot feed. Temperature and respiration are normal, general condition satisfactory and vaginal exploration shows that everything is normal in that direction. Failing to make a positive diagnosis, tonics are prescribed and for a while the animal shows some improvement. But this does not last

and soon the animal again refuses all kinds of food, solid, liquid, dry or green; she loses flesh, her milk diminishes and yet she has no fever and appears as gay as usual. However, new manifestations are soon present. The cheeks are swollen, thready saliva escapes from the mouth and on examination of that cavity, the lingual canal and the inside of the cheek are found literally packed with food, scarcely chewed and having a strong odor of maceration. Extracted, this weighed two kilograms. Relieved of this mass, the animal takes some liquids, but when she is offered solids, she tries to take it and cannot. Another examination of the mouth is made and is negative. However, outside on a level with the left temporo-maxillary joint a small swelling is observed, diffused, not very painful, hard and not warm. A blister is applied. But the animal does not improve, she loses ground and is destroyed. The lesions found consisted in swelling of the bronchial lymphatic glands, containing yellow pus, very offensive. And an abscess in the left temporo-maxillary joint, with fœtid pus similar to that of the bronchial glands; the cartilage of the articular surfaces was necrosed and the articular surfaces much roughened and soft. No other lesions were found in any part of the body.—(*Journ. de Zootech.*)

Treatment of Tetanus with Oxygenated Water and Injections of Antitetanic Serum [*Mr. Dabert*].—A horse is taken with lock-jaw, probably sequela of a punctured wound of the foot. Treatment, quietness, obscurity, and in the morning 10 c.c. of serum. The disease progresses and after three days one litre of oxygenated water at 12 deg. is ordered to be taken in two doses. The animal is worse the next day; he receives sulphate of eserine, three injections of serum and two litres of oxygenated water. The horse improves, has a relapse after a week and the same treatment is started again. Soon convalescence sets in and slowly the animal recovers.—(*Journ. de Zootech.*)

Complete Uterine Torsion in a Cow with Rupture of the Right Horn, Due to Traumatism [*Pierre Bitard*].—A six-year-old pregnant cow is eighteen days behind her time. She has colic for past two days and has been treated by an empiric until in great danger of dying, then the author is called. She is standing up, raising now and then one hind leg, specially the right. Her features are contracted, the head carried

low, eyes are sunken, the vertical fissure back of the zygomatic process is much marked (an alarming symptom, says the author). Respiration is accelerated, heart beats strong and repeated, pulse small, filiform 106, temperature 38.3°. Abdomen is very large, flanks hollow. Repeated palpation of the abdomen fails to reveal anything about the fœtus. Vaginal exploration detects a complete torsion of the uterus to the left. The twists are numerous and prevent the introduction of the hand beyond it. Rectal examination shows that the vagina is also involved in the torsion and permits feeling a solution of continuity, which is supposed to be on the right horn. The calf cannot be detected. The cow is condemned and slaughtered. The torsion is readily exposed, a large quantity of fluid escapes from the horn, perhaps 70 litres, there is also a great quantity of serosity in the abdomen. The right horn is very large, hard, black in color and has on its superior face a solution of continuity, which involves the serous and muscular coats. The mucous membrane is infiltrated and forms a large hematoma in the uterine cavity. The accident was the result of heavy falls sustained by the animal.—(*Progres Veter.*)

Rectal Cyst in a Mare [*Mr. Douville, Adjunct Professor-Alfort*].—After suffering with dull and intermittent colics for some time, without gaining a permanent relief, an eight-year-old mare was brought to the attention of the author. After being put in a stall where she began to eat, the mare stops suddenly, and colicky symptoms are manifested. With difficulty, she passes some hard and dry balls of manure and suddenly as the last ball drops out, there appears a red mass which, it is said, has been noticed lately by the owner. The tumor is regularly spherical, the size of a child's head, it fills the space between the vulva and the base of the tail, which is kept elevated and pushed to the left. The mucous membrane is red and has some superficial abrasions. The tumor is painless and gradually subsides by moderate pressure applied on it. By rectal examination, the presence of the cyst is readily detected on the superolateral wall on the right side of the rectum; and when gradual pressure is put on it, its contents is felt running backwards and downwards alongside the arm of the explorer, and at the same time, goes and collects near the anus, where it forms a projecting cord. An exploring needle was introduced and 800 grams of fluid removed. The cavity was then filled with a solu-

tion of tinct. of iodine, iodide of potassium and water. After proper massing of the growth, this mixture was withdrawn. The mare was relieved for two days of her colic, when they returned and a second operation had to be done. This was followed by immediate and permanent disappearance of all difficulties.—(*Rec. de Med. Veter.*)

ITALIAN REVIEW.

By Prof. A. Liautard, M.D., V.M.

A Rare Case of the Abnormal Delivery of a Monstrous Fœtus [*Dr. Guido Finzi*].—The author was called to assist in a peculiar case of accouchement of a cow. Aged six years, the animal has had several normal parturitions before and was in excellent condition. When first taken in labor, she presented nothing abnormal, but soon after she has violent and frequent pains and she made powerful efforts without any results. The water bag had burst, the pulse became accelerated, the vulva swollen and the vaginal mucous membrane highly congested. Vaginal exploration revealed the severity of the case, as the four extremities were found at the uterine opening. Was it a right or a left cephalo-iliac position could not be made out? The conformation of the fœtus was certainly abnormal and its size enormous. To distinguish the fore from the hind legs was also very difficult on account of their anatomical conformation and of their special position. With difficulty a cord was secured to two of them and tied up as high as possible, whether the hock or the knee. Finally, the fœtus was extracted, no less than eight men being required to pull on the rope. The cow after two days was well and ruminating. The fœtus was a monstrous individual. The rachis was flexed in the opposite direction than normal and the extremities much distorted, instead of being implanted so as to come together under the abdomen, it did on the back. The external conformation of the carpus and of the tarsus was almost identical, hence the difficulty in distinguishing them by manipulations within the uterus.—(*La Clin. Veter.*)

Some Rare Cases of Echinoccocci in Bovines [*Doct. Agostino Toderi*].—Cases of echinoccocci are rather frequent in

bovines and are detected at post-mortems by the meat inspectors. They are found principally in the lungs and the liver and also more rarely in the spleen, the kidneys and the heart. The author has observed one case in a steer which had one cyst of echinoccocci occupying completely the left ventricle of the heart. As the case was discovered at the meat inspection, the effects of this condition of the heart upon the circulation remain unknown. Doct. Toderi relates two cases. In one with the animal in excellent condition, he found the parenchyma of the lungs full with echinoccocci and also the costal and visceral pleura. The sternal pleura was covered with them. They varied in size from that of an apricot to that of a large pomegranate. The liver was enormous and weighed 56 kilograms. It was full of cysts. In another case the lungs and the sternal pleura were extensively involved. All the other organs were healthy.—(*Archiv. Scient. della Acad. Veter. Ital.*)

Three Cases of Polidactily [*Drs. Alete Borella and Guido Finzi*].—The first was in a two-year-old colt, which had no record of abnomaly in his pedigree. The posterior legs were normal and perfectly straight, without any blemishes of any sort. The forelegs have a normal aspect as far as the fetlock when the digital region is bent a little outwards. On the internal surface, between the inner rudimentary metacarpus and the fetlock there are two supplementary digits. These are well developed, having three phalanges, two horny feet and a coronary band. The foot is moderately well formed and resembles much the toe of cattle. The supplementary digit is ankylosed with the metacarpus, but the interphalangeal joints are not. The animal can walk without difficulty, but when trotting stumbles and is liable to fall.

The second case was also in a colt which had the same abnomaily, viz, two supplementary digits on the forelegs. These have also three phalanges, a foot smaller than the normal one and having the form of the claw of cattle. This is elongated and curved towards the principal toe. The articulation with the internal metacarpus and the interphalangeal joints are moveable. The colt walked and ran without any impediment. His mother had on the internal face of the right foreleg just below the rudimentary metacarpus a small osselet which represented a first phalanx.

The third belongs to a pig. It consisted in a supplementary digit entirely developed also.—(*La Clin. Veter.*)

Lameness in a Horse Due to the Repairing Process of a Muscular Laceration [*Dr. Ruggero Fracaro*].—While being led by the bridle, a saddle horse, seven years of age, became suddenly lame on the left hindleg. A little below the point of the rump, there was a large swelling, spherical, not very warm, nor painful, rather elastic to the touch, and having a certain amount of fluctuation. It looked like an hematoma or a traumatic exudation of serosity. Below the swelling was a marked depression or hollow indicating a solution of continuity in the muscular mass of the long vastus and semi-tendinosus.

How did this occur? Could not be found out. However, by proper treatment of cold water applications first and blistering afterwards, the acute symptoms subsided, the effusion resorbed and the animal returned to work in due time.

Some three months later, he was again disabled, on the same leg. His lameness being characterized by a difficulty in carrying the leg forward, the action being interfered with by the presence of a cord on the seat of the old lesion filling the old laceration and having the size of the thumb of a man's hand. It was an organized cord formed by the cicatrized connective tissue and the muscular fibres. Relief could certainly have been obtained by a sub-cutaneous division of the cord, made with a blunt myotomy knife, but the animal was sold and lost sight of.—(*La Clin. Veterin.*)

A Fatal Kick.—Joseph Coggins, of Ashford avenue, while attending a sick horse on Friday last was kicked in the face, requiring six stitches to sew up the cut. The horse, which was a valuable animal, died later from colic.—(*Dobbs Ferry Register.*)

He Explained.—At a school one day a teacher, having asked most of his pupils the difference between an island and a peninsula without receiving a satisfactory answer, came to the last boy.

"I can explain it, sir," said the bright youth. "First get two glasses. Fill one with water and the other with milk. Then catch a fly and place it in the glass of water. That fly is an island, because it is entirely surrounded by water. But now place the fly in the glass of milk, and it will be a peninsula, because it is nearly surrounded by water."

The boy went to the top of the class.

CORRESPONDENCE.

AUTOMOBILE DISCARDED FOR THE HORSE.

DENVER, COLO., Dec. 12, 1908.

EDITORS AMERICAN VETERINARY REVIEW:

Gentlemen: For the benefit of my brother colleagues that may be contemplating the purchase of an automobile to displace the horse in their practice, I desire to give them this "tip." I have used a machine for the past months in my practice in Denver; I drove a machine 23,000 miles at a cost of $2,500. I found the automobile wholly unreliable for my business, and very expensive. If I saved an hour to-day, I would lose two to-morrow; in other words, after figuring the time lost on account of breakdowns, tire troubles and necessary adjustments, and the time the machine was in the shop that I really did not save any time, but that I was losing much valuable time. I found that when it became necessary to go to the shop for repairs that I fell in the hands of men without any conscience or honesty. They would work on my car one hour and probably charge for two or three, at the rate of 75 cents per hour.

I found that the auto did not equal the horse on muddy or sandy roads or in rainy or cold weather. It requires more thought to keep up with the running of the machine and keep it all together than it does to look after one's practice, or study how to make a living therefrom. A doctor, in my judgment, needs to think over his cases and business when he is traveling from one to the other during the day, but it is impossible to do so when running a machine, for it must have your entire thoughts. *An automobile will consume the profits of a medium business.* No man can afford to use one from a business standpoint, they can only be looked upon from a luxury viewpoint. The automobile can only be afforded by the rich. There will be a reaction within the coming year back to the horse, since every one that has the auto fever must buy an auto, or two, before he opens his eyes to what a fool he has been to spend two or three thousands of dollars per year just for something to get around the country with, when formerly he only paid twenty or thirty dollars for a horse per month. Great good will come

through the auto fever; that is, the people will not be satisfied any more with a common horse, or buggy, but they will buy a four or five hundred dollar horse, where they formerly bought a hundred dollar one.

The automobile causes the people to lavish and squander their money and makes them extravagant. I am using the horse again with more satisfaction and comfort than ever before. It is all a mistake to believe that a doctor can turn off more business with the machine than he can with the horse. He cannot do it.

Respectfully yours,

MARK WHITE, V.M.D.

THE BRAKEMAN'S JOKE.—"Ran over a cow this morning up above Coffeyville," said the brakeman to a reporter.

"How did it happen?" asked the reporter.

"She was drinking out of a creek under a bridge," shouted the brakeman as he swung on to the last car and went grinning out of town.—(*Kansas City Times.*)

GOAT'S $15,000 MEAL.—A peasant followed by a goat walked into the local bank at Aurillac to pay in some money. As he was going out a clerk noticed that the goat had a piece of paper in his month.

He vaulted over the counter and caught the animal just in time to prevent it swallowing a bond worth £3,000, which it had nibbled off the counter.—(*London Evening Standard.*)

THE SAW OF THE MOSQUITO.—The bill of the mosquito is a complex institution. It has a blunt fork at the head and is apparently grooved. Working through the groove and projecting from the angle of the fork is a lance of perfect form sharpened with a fine bevel. Beside it the most perfect lance looks like a hand saw. On either side of the lance two saws are arranged, with the points fine and sharp and the teeth well defined and keen. The backs of these saws play against the lance. When the mosquito alights, with its peculiar hum, it thrusts its keen lance and then enlarges the aperture with the two saws, which play beside the lance until the forked bill with its capillary arrangement for pumping the blood can be inserted. The sawing process is what grates upon the nerves of the victim and causes him to strike wildly at the sawyer.—(*Exchange.*)

CIVIL SERVICE EXAMINATIONS.

EDITOR.

OFFICE OF EXPERIMENT STATIONS, DEPARTMENT OF AGRICULTURE.

The United States Civil Service Commission announces the postponement to January 6-7, 1909 (in view of the small number of applications filed), of the examination scheduled for November 24-25, 1908, at the places mentioned in the list printed by the Commission, to secure eligibles from which to make certification to fill a vacancy in the position of editor in charge of the departments of entomology, economic zoology, and veterinary science, in the Experiment Station Record, Office of Experiment Stations, Department of Agriculture, at $1,500 per annum, and vacancies requiring similar qualifications as they may occur in that Department.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	*Weights.*
1. Spelling (twenty words of more than average difficulty).	3
2. Arithmetic (fundamental rules, fractions, percentage, interest, discount, analysis, and statement of simple accounts)	3
3. Penmanship (the handwriting of the competitor in the subject of letter-writing will be considered with special reference to the elements of legibility, rapidity, neatness, general appearance, etc.)	3
4. Letter-writing (a letter of not less than 150 words on some subject of general interest. Competitors may select either of two subjects given)	6
5. Copying from rough draft (the writing of a smooth copy of rough-draft manuscript, including the correction of all errors of spelling, capitalization, syntax, etc.)	5
6. Editing and abstracting	10
7. Proof reading and indexing	10
8. Special subject:	
(*a*) Economic zoology and veterinary science, or	
(*b*) Animal husbandry and dairying	40
9. Training and experience (rated on application)	20
Total	100

A rating of at least 70 per cent. in the special subject chosen is required for eligibility.

Some knowledge of French and German is required, and the candidate's proficiency in these languages will be considered in the rating for training and experience.

The position to be filled as the result of this examination requires a man of special qualifications, including not only fundamental knowledge in the subject chosen, but considerable advanced training, and general familiarity with its literature.

Two days will be required for this examination.

Age limit, 20 years or over on the date of the examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed by the Commission, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

VETERINARY INSPECTOR.

BUREAU OF ANIMAL INDUSTRY, DEPARTMENT OF AGRICULTURE.

The United States Civil Service Commission announces an examination on January 20, 1909, at the places mentioned in the list printed by the Commission, to secure eligibles from which

to make certification to fill vacancies as they may occur in the position of veterinary inspector, at $1,400 per annum, in the Bureau of Animal Industry, Department of Agriculture.

As the Commission has experienced considerable difficulty in securing eligibles for filling these positions, qualified persons are urged to enter this examination.

It will be noted that the entrance salary of this position has been increased to $1,400 *per annum, promotion to* $1,600 *to be made after two years' satisfactory service at* $1,400, *and promotion to* $1,800 *after satisfactory service for two years at* $1,600 *per annum.*

The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	*Weights.*
1. Spelling (twenty words of average difficulty in common use)	5
2. Arithmetic (simple tests in addition, subtraction, multiplication, and division of whole numbers, in common and decimal fractions, and of United States money).	5
3. Letter-writing (a letter of not less than 125 words on some subject of general interest. Competitors may select either of two subjects given)	5
4. Penmanship (the handwriting of the competitor in the subject of copying from plain copy will be considered with special reference to the elements of legibility, rapidity, neatness, general appearance, etc.)	5
5. Copying from plain copy (a simple test in copying accurately a few printed lines in the competitor's handwriting)	5
6. Veterinary anatomy and physiology	15
7. Veterinary pathology and meat inspection	30
8. Theory and practice of veterinary medicine	30
Total	100

The last three subjects include general questions on anatomy and physiology, a consideration of the pathology of diseases in general, and such special pathology as is characteristic in diseases common to food-producing animals. The symptoms, diagnosis, and treatment of diseases incident to domesticated animals will be considered.

A competitor who fails to attain an average percentage of at least 70 in the sixth, seventh, and eighth subjects will not be eligible for appointment, and the remaining subjects will not be rated.

Seven hours will be allowed for the examination.

Age limit, 20 years or over on the date of examination.

Applicants must be graduates of recognized veterinary colleges. Those graduating prior to or during 1897 will be admitted if from colleges having a course of not less than two years in veterinary science; applicants graduating since that time must be from colleges having a course of not less than three years and must have taken the whole course or its equivalent, and at least two years must have been spent in the study of veterinary science in such colleges. These facts must be shown in the application.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed by the Commission, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

THERE ARE OTHERS.—Old Emdee—Well, how do you like your profession?

Young Emdee—Profession is O. K. It's the practice I'm kicking about.—(*Town and Country.*)

OBITUARY.

GEORGE O. FORSYTH, V.M.D.

The sad intelligence reaches us of the sudden death of Dr. George O. Forsyth, veterinary practitioner of Burlington County, N. J. His funeral took place from his late residence at Johnstown, December 19, 1908.

Dr. Forsyth was a successful practitioner, well known throughout Central Jersey. He was a graduate of the University of Pennsylvania and a prominent member of the Veterinary Medical Association of New Jersey.

W. F. CARR, V.S.

It is with deep regret that the REVIEW is called upon to chronicle the sad demise of Dr. W. F. Carr of Bay City, Mich., which occurred Sunday evening, November 15, 1908, at 7.30 o'clock, at Mr. U. M. Guilford's ranch, situate about 20 miles west of West Branch, Mich., where Dr. Carr and a party of friends were on a hunting expedition.

Dr. Carr had shot a fine deer and in the evening, surrounded by his friends, was examining the various kinds of rifles of his associates when one of the fire arms, which was not supposed to have been loaded, went off, the ball striking him in the left breast and going through him. Medical aid was summoned from West Branch and Bay City but he died the same night at 11.30 o'clock. He was conscious, however, up to the last moment of his life and used this precious time to good advantage arranging for the welfare of his wife and attending to a proper adjustment of his business affairs. His body was brought to West Branch and from there to Bay City and thence to Buffalo, N. Y., for interment.

Among those in the hunting party was his old friend, Dr. John Wende of Buffalo, with whom he had been associated in practice until four years ago, when he moved from Buffalo to Bay City. Dr. Carr was a successful practitioner and enjoyed the acquaintanceship of a large circle of friends who deeply mourn his untimely death.

G. A. BARNES, V.S.

The sympathy of the profession goes out to the family and friends of Dr. G. A. Barnes, veterinary surgeon, who is reported to have been burned to death in the destruction of his house by fire, December 10, 1908, at Woodville, East of Toledo, Ohio.

SOCIETY MEETINGS.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting was held on Tuesday evening, December 8, 1908, in Donaldson's Hall, Broad and Filbert streets, Philadelphia.

Dr. John Reichel occupied the chair. There were present twenty members, several professional visitors and many of the students of the graduating class of the Veterinary Department of the University of Pennsylvania.

Dr. H. C. Campbell was elected a member. The program committee reported the possibility of a helpful schedule of subjects for the year and able and well-known speakers for the meetings.

The evening was devoted to symposium on Foot and Mouth Disease or Aphthous Fever.

Dr. Laycock, in charge of the state control and eradication of the disease at Norristown, very kindly came to the city to address the association. He gave the meeting first-hand information as to the actual conditions of the field work, and detailed the means being pursued in the inspection, control, disinfection and eradication of the plague.

Dr. C. J. Marshall read extracts from the circular on this disease, issued by the secretary of the State Live Stock Sanitary Board, especially emphasizing the wisdom of the "stamp out" method and the characteristic clinical features of the disease.

Dr. John Reichel reviewed what has been so far discovered as to its etiology, and concluded by exhibiting five specimens of the several stages of the disease in cattle and swine—these specimens form part of the collection in the pathological museum of the Veterinary Department of the University of Pennsylvania. The meeting adjourned at 11.20 p. m.

S. Lockett, Secretary.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly of this association was held on the evening of December 16, 1908, at No. 514 Ninth street, N. W.,

Washington, D. C. The president, Dr. John Lockwood, occupied the chair.

Dr. Lockwood brought up the question of recommending the extension of the dog-muzzling ordinance in the District for another six months (the six months' period covered by the present ordinance having expired on the 16th instant). A discussion developed the fact that the largest number of cases of rabies occur during the winter months; also that 200 rabied dogs were discovered in the District during the past six months. Resolutions were adopted recommending the extension of the order for another six months, and the secretary was instructed to forward copies of the same to the President of the United States, the Secretary of Agriculture, and the Commissioners of the District of Columbia.

Dr. H. J. Washburn, of the Pathological Division, Bureau of Animal Industry, then read an extremely interesting and instructive paper on Foot-and-Mouth Disease, which was received with much interest, thoroughly discussed, and a rising vote of thanks was extended the doctor.

The annual election of officers will occur at the next meeting, January 20, 1909. F. M. Ashbaugh, Secretary.

MISSOURI VALLEY VETERINARY ASSOCIATION.

The semi-annual meeting of this association will be held in Kansas City, February 2 and 3, 1909.

The program will be filled to repletion with up-to-date and current scientific topics. The subject of hog cholera and vaccination and many other absorbing topics of the present time will be presented.

The committee on local arrangements are busy. An excellent clinic is planned for the afternoon of the second day and a banquet for the first evening.

Every veterinarian in the middle west should plan to attend this meeting. You can not afford to miss it. The business and social entertainment will repay the expense of attending. Don't forget the date—the first Tuesday and Wednesday in February.

J. I. Gibson, President.
B. F. Kaupp, Secretary.

YORK COUNTY (PA.) VETERINARY MEDICAL SOCIETY.

The above society held its quarterly meeting in the National Hotel parlor, York, Pa., on Tuesday afternoon, December 1, 1908, with a good attendance of city and county veterinarians. Aphthous fever, or the foot-and-mouth disease, glanders, and tuberculosis, were discussed in general by the members present. The secretary reported a case of dumb rabies in a dog which had occurred a few days previous to the meeting, and Dr. Charles Lenhart a case of rabies in a cow. The next meeting will be held on the first Tuesday in March, 1909.

E. S. Baustickер, Secretary.

We passed, in the course of an hour, two dead cows and more than fifty dead chickens. A strong smell of gasoline pervaded the atmosphere, and there were wheel tracks in the dust.

Sherlock Holmes became greatly interested.

"Watson," exclaimed he, after deep thought, "there has been an automobile along here!"—(*Louisville Courier-Journal.*)

Mentality of Deep Sea Fish.—Fish that inhabit the depths of the sea beyond the penetration of daylight depend largely in their search for prey on the senses of hearing and smell. One would think they would have no use for eyes at all; but nature has provided some of them with organs for the emission of phosphorescent light, and in some cases the eye itself performs the double service of illumination and vision. There is thus a feeble light in those gloomy depths. An examination of the brains of some of these creatures made recently in Germany by Dr. Trojan shows that the conformation of this organ, as well as the distribution of nerves, favors the senses of smell and hearing. The feeble development of the optic lobes and nerves indicates that vision is imperfect, while the powerful olfactory and auditory nerves, the huge "ear-stones" and the size of the corresponding brain centres show what a preponderent part is played by sounds and smells in the mental life, if such it can be called, of dwellers in the marine abysses.—(*Exchange.*)

NEWS AND ITEMS.

THE New York "Smoker" was a notable social event.

SOME men resemble goats; they can't help "butting in."

IT is the wise head that makes the still tongue.—(*Lucas.*)

MARK TWAIN: All education is preparatory. It is life that gives the finals, not college.

THE Colorado Veterinary Medical Association will hold its annual meeting in Denver on January 2, 1909.

LET us be of good cheer, remembering that the misfortunes hardest to bear are those that never come.—(*Lowell.*)

THE AMERICAN VETERINARY REVIEW is certainly a blessing to the profession.—(*J. C. Myers, M.D.C., Norfolk, Nebr.*)

THE annual meeting of the Pennsylvania State Veterinary Medical Association will be held March 2nd and 3rd, 1909.

TROOP M., Fifth Cavalry, will sail from San Francisco January 10th for Honolulu, which will be their permanent station.

THE difference between a man's handshake and the wag of a dog's tail is that the wag is always sincere.—(*Marion (Ga.) Patriot.*)

DR. C. COURTNEY MCLEAN, of Meadville, Pa., was among the exhibitors at the 1908 National Horse Show, Madison Square Garden, New York City.

SECRETARY HAL. C. SIMPSON reports that the prospects are very bright for a grand meeting of the Iowa Veterinary Association at Fort Dodge, January 19, 20, 21, 1909.

DR. W. REID BLAIR, veterinarian of the Bronx Zoological Park, New York, has under his charge nearly twice the number of animals as there are in the London Zoological Garden.

A SURE RULE.—De Canter—Is there any sure way to tell the age of a horse?

De Trotter—Yes. Ask the dealer and multiply by one-half.

Two Bad Bites.—Diogenes being asked "What is that beast which is the most dangerous?" replied, "Of wild beasts the bite of a slanderer and of tame beasts that of the flatterer."

On Thursday afternoon, January 14, Dr. Leonard Pearson will speak before the New Jersey State Board of Agriculture, in the State House, Trenton, on the Problem of Animal Tuberculosis.

The Veterinary Medical Association of New Jersey meets at Trenton January 14th and the State Board of Veterinary Medical Examiners at the State House, Trenton, January 29, 30.

Myrtle Station, Ontario, Canada, Dec. 15, 1908.

Enclosed find exchange order for $3.25 for Review for year 1909, which is the best evidence of its appreciation by—(*Geo. L. Robson, V.S.*)

An Exception.—"Animals," said the teacher, "frequently become attached to people, but plants never do."

"How about burs, teacher?" queried the small boy at the foot of the class.—(*Chicago News.*)

The Agricultural Department of the Transvaal is now under the direction of C. E. Gray, M.R.C.V.S., Principal Veterinary Surgeon of the Transvaal, during a six months' absence of Mr. F. B. Smith, Director of Agriculture.

Announcement is made of the marriage of Dr. William Russell Fullerton and Miss Susan Marion Hantelmann, December 16, 1908, Chicago, Ill. Dr. and Mrs. Fullerton will be "At Home," Dubuque, Ia., after February 1, 1909.

Editors American Veterinary Review:—Enclosed herewith please find check in payment of my annual subscription for the best veterinary journal on earth.—(*O. L. Borr, Secretary Indiana State Board of Veterinary Medical Examiners, Muncie, Ind.*)

Experience.—"Experience would be a wonderful asset but for one thing."

"What's that?"

"You never can sell it for what it cost you."—(*Cleveland Leader.*)

COMPARISONS ARE ODIOUS.—Perkins, Jr.—Why don't ye buy that horse of Seth's, pop? He's got a fine pedigree.

Perkins, Sr.—Pedigree! The question is, is he wuth anything? Why, boy, them sassiety folks what comes here in the summer has pedigrees.—(*Brooklyn Life.*)

CARL W. GAY, B.Sc., D.V.M., is the new head of the Agricultural Department of the Colorado Agricultural College. It is expected that Professor Gay will teach Zootechnics in the Veterinary Department. This will make six veterinarians on the campus engaged in teaching veterinary science.

THE Sioux Falls Veterinary Hospital is the name of a new veterinary establishment just opened by Drs. Graham and McGilvray at Sioux Falls, S. D. The hospital is equipped with all necessary appliances for the successful practice of veterinary surgery as well as for the treatment of sick animals.

EXPLAINED.—"Ma," said Mrs. Malaprop's little boy, "what is 'antimony?'"

"Sh, that's not nice to talk about!" replied Mrs. Malaprop. "It's what a lady gets when she's divorced from her husband."—(*Exchange.*)

VETERINARIAN WILLIAM DIMOND has been selected as chairman of the committee to have charge of the tenth annual banquet of the Road Horse Association of New Jersey, to be held at the Kruger Auditorium, Newark, on Wednesday evening, February 3, 1909.

"SOME COMMON DISINFECTANTS" is the title of Farmers' Bulletin 345 issued by the Bureau of Animal Industry, December 17, 1908. In its preparation care has been taken to correct popular misconceptions as to the value and limitations of various disinfectants in general use.

CHANGED HIS AMBITION.—"It used to be the height of my ambition to own a motor car," said the worried-looking man.

"And what is the height of your ambition now?" asked the friend.

"To sell it."—(*Philadelphia Inquirer.*)

$5,000 MONUMENT TO WAR HORSES.—A monument has just been erected at Port Elizabeth, South Africa, to the memory of the horses that died during the Boer war. It cost upward of $5,000, and is in the shape of a stone watering trough, with a bronze cavalryman giving a drink to a horse.

Dr. Eldridge N. Brown, C.V.C., '06, has received the appointment of Assistant Meat and Live Stock Inspector for the City of Nashville, Tenn. His term of office begins January 1, 1909. The Board of Health re-appointed Dr. Joseph Plaskett McGill, '93, as Chief Inspector, a position he has held for over six years.

Dr. L. M. Steckel, O.S.U. '07, formerly with the U. S. Bureau of Animal Industry, has gone abroad to take up post-graduate work at the Royal Veterinary College of Berlin. Dr. Steckel, before sailing, paid a visit to the Review office. We wish him "Bon Voyage" and a safe return to the states after completing his studies on the continent.

A conference for the veterinarians of New York state at the New York State Veterinary College, Cornell University, at Ithaca, N. Y., is announced for January 12 and 13. A very attractive program has been arranged, including lectures on important veterinary subjects, clinics and surgical exercises. The laboratories will be open for demonstrating to the visiting veterinarians modern methods of diagnosis.

Dr. Chas. A. McKim, state veterinarian of Nebraska, will leave Lincoln on January 11th to resume private practice in Norfolk, that state.

Dr. McKim has held the position of state veterinarian in his state since July 1905, and his friends in the profession will regret to learn that he has left the state service; which circumstance has been brought about through a change in the administration, as a result of the recent election. May good fortune attend the doctor in his return to his old field of practice.

Veterinarian for Tuberculosis Director in Kansas.—The constitution of the Kansas Association for the Study and Prevention of Tuberculosis, organized at the Governor's conference on Tuberculosis December 3, 1908, stipulates that one of the Board of Directors shall be a member of the state veterinary association. It is almost a foregone conclusion that Dr. Burton Rogers, Manhattan, Kansas, Secretary of the Kansas Veterinary Medical Association, who has an intensified interest in the subject, will be nominated for Tuberculosis Director at the forthcoming annual meeting of the state association to be held at Topeka, January 12 and 13, 1909.

Alpha Psi Fraternity.—The biennial convention of the Alpha Psi Fraternity was held at the Alpha Chapter House, Columbus, Ohio, on the first and second of December, 1908. The new National Council are Drs. A. F. Schalk, president; R. J. Walker, Jr., vice-president; R. E. Warren, secretary; H. P. Gill, treasurer.

The social part of the evening was well arranged. On the evening of December first, the members of the Alpha Chapter gave a dance at the New U. C. T. Hall; and on the evening of December second, the retiring Council, the delegates, Drs. Cook, Reinhard, Schoen and Adams, and several members of the faculty were entertained with a "smoker" at the House.

Clydesdale and Percheron Stallions for New Jersey.—The State of New Jersey is now the owner of 3 Clydesdale and 8 Percheron stallions recently purchased in Europe by a committee of the State Live Stock Commission, consisting of E. T. Gill of Haddonfield, F. C. Minckler of New Brunswick, and Veterinarian T. Earle Budd of Orange. The stallions arrived the latter part of December and are now at the state farm at New Brunswick, where they will be kept until thoroughly acclimated. These stallions will be placed in charge of the several horse breeding associations for the purpose of improving the stock in New Jersey.

The action of New Jersey in establishing a commission to assume supervision of horse breeding in the state is in line with the tendency of the times throughout the United States and the countries of the world. Pennsylvania, Iowa, Minnesota, Illinois, Missouri, North Dakota, Utah and Wisconsin are among the states which now have a system of inspecting and licensing stallions kept for public service, but New Jersey is believed to be the first that has provided for state ownership of stock horses to be stationed throughout the horse breeding centres.

Dr. Budd reports a very delightful call upon Professor Liautard while in Paris.

Banquet of the Veterinary Practitioners' Club.—One of the most enjoyable social functions which it has been our privilege to attend was the annual banquet of the Veterinary Practitioners' Club of Hudson County, N. J., which was held at the Columbian Club, Jersey City, on Tuesday evening, December 15, 1908.

After full justice had been done to an elaborate menu, President Meiners called upon Dr. Thomas E. Smith to fill the role of toastmaster, which he did to the satisfaction and gratification of everybody. Hon. James Baker, a member of the New Jersey Legislature, responded to the toast "New Jersey" in an able and eloquent manner. Prof. James J. Hopkins, Principal of the Jersey City High School, delivered a masterful address on "Education as an Asset," setting forth in an incontrovertible manner the inestimable value of an adequate preliminary education before taking up the study of a profession, and pointed out, to the complete satisfaction of his auditors, why the preparation should be no less thorough or extensive for the study of the veterinary sciences than for any of the other learned professions. It is Dr. Smith's privilege to number this able educator, as well as the distinguished legislator, among his esteemed friends. Other toasts were responded to by Drs. F. C. Grenside, James L. Robertson, Geo. H. Berns, H. D. Gill and Wm. Herbert Lowe. The success of the affair was largely due to the efforts of the banquet committee, Drs. R. J. Halliday, J. L. Lindsay and T. E. Smith. The Veterinary Practitioners' Club is affiliated with the Veterinary Medical Association of New Jersey, and the REVIEW predicts that its potent influence will be an important factor in the advancement and upbuilding of the profession in that state.

GETTING AT A DOG'S MIND.—Is such a thing as animal psychology possible? One may reason about the processes of his own mind; he may even compare them with those of other minds, as described to him in words. But one can neither be a dog nor talk to a dog; how, then, may we be sure of what or how a dog thinks or of whether he thinks at all?

Now, a dog cannot talk, at least with human speech, but vocal utterance is not the only sign of what is going on in the mind. Signs unnoticed by the ordinary man have been skilfully discovered and utilized by the students of animal psychology, sometimes with a cleverness that is little short of astounding.

Take, for instance, a recent method devised by Dr. Zeliony, a Russian investigator, which may prove to be a key that will unlock a large chamber in the animal mind. He uses it, for example, to inquire how great a musical interval a dog is capable of appreciating, and he shows conclusively that a dog may tell the difference between musical sounds only a quarter of a tone apart—more than a good many humans are able to do.

This is how he does it:—The sight of food makes a dog's mouth water; in other words, it acts through the brain on the glands that secrete saliva. Likewise, almost anything associated with the idea of food will, by association, also make the animal's mouth water.

Dr. Zeliony feeds a dog day after day to the sound of a single musical tone, until that tone and the food are inextricably connected in the dog's mind. Thereafter the sound of that particular note will always cause secretion of saliva. But no other note will so act, and if the sound be higher or lower by more than one-quarter tone—no "watering at the mouth."

To the dog a sound having a particular pitch means food; one of another pitch does not, and he can detect that it is of another pitch when it is "off" by a quarter of a tone. This method is as convincing as it is clever, and its results are certainly astonishing.—(*Arthur E. Bostwick in the N. Y. Herald.*)

The Philippine Islands Safeguarded.—Veterinarian G. E. Nesom, Director of Agriculture, with the approval of the Honorable, the Secretary of the Interior, under date of November 2, 1908, issued from the Bureau of Agriculture, Manila, General Order No. 12 prohibiting the landing of domestic animals infected with any dangerous communicable disease, or that have been exposed to such infection, at any port in the Philippine Islands except as provided for in said order. General order No. 12 is an amendment to General Order No. 10 issued June 5, 1908. The original order is materially amended, all of rule II being stricken out and the following substituted therefore:

1. Whenever any domestic animals, as defined in Section 1 of Act 1760, arrive in a port of the Philippine Islands from any foreign port and are found to be infected with or exposed to any dangerous communicable disease, as defined in Section 2 of Act 1760, such animals will be prohibited from landing except as hereinafter provided.

2. Imported animals found to be infected with or exposed to anthrax, on arrival in any port of the Philippine Islands will not be allowed to land, but must be taken, with all effects pertaining to them, beyond the jurisdiction of the Philippine Islands.

3. Whenever any domestic animals, arriving at the port of Manila from any port, are found to be infected with rinderpest or foot-and-mouth disease, the Director of Agriculture will grant

special permission for the discharge of any or all of such animals from the vessel or vessels on which they arrive, into suitable vessels or lighters on which they may be held at the port of Manila under the supervision of an authorized representative of the Director of Agriculture, until such time as they may be exported or slaughtered as hereinafter provided.

4. Any vessel or lighter or any other form of water craft to which animals are transferred, as provided in Section 3 of this rule, will be regarded as a quarantine corral and subject to the rules and regulations governing the same: *provided* that no animals held in quarantine on such vessel, lighter or water-craft will be permitted to land, except for immediate slaughter until the expiration of the minimum quarantine period required under the provisions of Section 1 of Rule I, General Order No. 10.

5. The Director of Agriculture will allow animals, so held in quarantine at the port of Manila, to be landed at a point designated by him, as near as practicable to the municipal slaughter house and to be conducted by the shortest practicable route, to be approved by him, into such slaughter house and to be killed immediately. The carcasses of such of them as are diseased and are unfit for human food at the time they are killed must be immediately transported to the city crematory and burned.

6. The Director of Agriculture will refuse to permit the transfer from the ship or vessel on which they arrive at the port of Manila to any other vessel, lighter or other form of water craft, or to the shore, of all animals hopelessly ill with any dangerous communicable disease or suffering from such disease to such an extent as to render them unfit for human food; *provided* that the Director of Agriculture will, in his discretion, authorize the killing of such animals on the ship or lighter, and their immediate transfer to the crematory where they must be immediately burned.

7. Landing privileges similar to those authorized in Sections 3, 4, 5 and 6 of this Rule will be extended to animals arriving at other ports of entry in the Philippine Islands, whenever such ports provide suitable slaughter houses, approved by the Director of Agriculture, in which animals may be conveniently landed and killed without danger of spreading infection.

This order shall take effect immediately upon its approval by the Secretary of the Interior.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
American V. M. Ass'n	Sept. 14-17, 1909.	Chicago	R. P. Lyman, Kansas City, Mo.
Vet. Med. Ass'n of N. J.	Jan. 14, 1909.	Trenton	W. Herbert Lowe, Paterson.
Connecticut V. M. Ass'n		New Haven	B. K. Dow, Willimantic.
New York S. V. M. Soc'y	Sept., 1909	Ithaca	J. F. De Vine, Goshen.
Schuylkill Valley V. M. A		Reading	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n	Call of Chair	Paterson, N.J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n	Call Exec. Com.		R. P. Marsteller, College Sta.
Massachusetts Vet. Ass'n	Monthly	Boston	Wm. T. White, Newtonville.
Maine Vet. Med. Ass'n		Waterville	A. Joly, Waterville.
Central Canada V. Ass'n		Ottawa	A. E. James, Ottawa.
Michigan State V. M. Ass'n	Feb. 2-3, 1909.	Lansing	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C	April, 1909	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n		Chicago	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad			S. Beattie, Madison.
Illinois V. M. and Surg. A	Jan. 5, 6, 7, 1909.	Louisville	Frank Hockman, Louisville.
Vet. Ass'n of Manitoba	Not stated	Winnipeg	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n		Raleigh	Adam Fisher, Charlotte.
Ontario Vet. Ass'n			C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n	Jan. 12-13, 1909.	Columbus	Sidney D. Myers, Wilmington
Western Penn. V. M. Ass'n	1st Wed. ea. mo.	Pittsburgh	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n		St. Joseph	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n	Jan. 14, 1909.	Rochester	J. H. Taylor, Henrietta.
Iowa Veterinary Ass'n	Jan. 19, 20, 21	Ft. Dodge	H. C. Simpson, Denison.
Minnesota State V. M. Ass'n	Jan. 13-14, 1909.	St. Paul	C. A. Mack, Stillwater.
Pennsylvania State V. M. A	March 2-3, 1909.	Philadelphia	F. H. Schneider, Philadelphia.
Keystone V. M. Ass'n	Monthly	Philadelphia	S. Lockett, Glenolden.
Colorado State V. M. Ass'n	Jan. 2, 1909.	Denver	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n	Feb. 2-3, 1909.	Kansas City	B. F. Kaupp, Fort Collins, Colo.
Rhode Island V. M. Ass'n	Jan. and June	Providence	T. E. Robinson, Westerly.
North Dakota V. M. Ass'n			C. H. Martin, Valley City.
California State V. M. Ass'n	2d Wed. in Aug.	Alameda	C. M. Haring, U. C., Berkeley
Southern Auxiliary of California State V. M. Ass'n	Jan. Apl. Jy. Oct.	Los Angeles	J. A. Edmonds, Los Angeles.
South Dakota V. M. A	2d Tues. in Jy. '09	Sioux Falls	J. A. Graham, Sioux Falls.
Nebraska V. M. Ass'n		Grand Island	H. Jensen, Weeping Water.
Kansas State V. M. Ass'n	Jan. 12-13, 1909.	Topeka	B. Rogers, Manhattan.
Ass'n Médécale Veterinare Française "Laval"	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A		Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n		Not decided	D. A. Piatt, Lexington.
Washington State Col. V. M. A	Monthly	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association	An'l, Jan., '09	Indianapolis	E. M. Bronson, Indianapolis
Louisiana State V. M. Ass'n			E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n	2d Thu. ea. mo.	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A			Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n			J. C. Robert, Agricultural Col.
Georgia State V. M. A		Atlanta	C. L. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn	June, 1909.	Philadelphia	B. T. Woodward, Wash'n, D.C.
Virginia State V. M. Ass'n		Norfolk	W. G. Chrisman, Charlo'sv'le.
Oklahoma V. M. Ass'n			W. H. Martin, El Reno.
Veterinary Practitioners' Club	Monthly	Jersey City	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia	3d Wed. ea. mo.	514—9th St., N. W.	F. M. Ashbaugh, Wash., D.C.
B. A. I. Vet. In. A., Chicago	2d Fri. ea. mo.	Chicago	J. Madsen, Chicago, Ill.
Arkansas Veterinary Society			B. H. Merchant, Little Rock.
York Co. (Pa.) V. M. A	1st Tues. in Mar.	York, Pa.	E. S. Bausticker, York, Pa.
Philippine V. M. A			R. H. McMullen, Manila.
Montana State V. M. A		Helena	
Veterinary Ass'n of Alberta			C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Chicago Veterinary Society	2d Tues. ea. mo.	Chicago	J. M. Parks, Chicago.
Maryland State Vet. Society		Baltimore	H. H. Counselman, Sec'y.
St. Louis Soc. of Vet. Inspectors.	1st Wed. fol. the 2d Sun. ea. mo.	St. Louis	Wm. T. Conway, St. Louis, Mo.

PUBLISHERS' DEPARTMENT.

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Rejected manuscripts will not be returned unless postage is forwarded.

Subscribers are earnestly requested to notify the Business Manager immediately upon changing their address. **Make all checks or P. O. orders payable to American Veterinary Review.**

Another Warning.

On several previous occasions the Review has warned its readers against wandering, self-styled agents who take subscriptions for periodicals, offering all sorts of inducements and never deliver the books.

Some time ago we were constantly receiving complaints from Review readers (who had been caught by these land pirates), because they were not receiving their copies of the Review, for which they had subscribed through John Doe, some time previous, who had represented himself as our agent. In most instances the "fake" agent had clubbed several periodicals together at a very low figure. We at first answered each complaint by letter, explaining that we had never received the subscription, did not know the so-called agent, and never clubbed the Review with other periodicals; but the complaints became so numerous that we were compelled to answer them through this department on several occasions.

For some time past, until recently, we had ceased to hear of these polite "hold-ups"; but again operations to relieve innocent citizens of their money by the subscription game have begun, and we have received letters from men who have been "stung," as they term it, and desire to warn their fellow veterinarians through the Review to be on their guard.

These last gentlemen that have written have not been promised the Review in the inducement offered, but being veterinarians use the Review as a medium through which to warn their friends and others in the profession. You need never be taken in in regard to the Review, as it is *never clubbed with other periodicals, never sold for less than the subscription price, and never employs wandering agents.*

Planten's Empty Veterinary Capsules are positively reliable, whether the medicament to be conveyed to the stomach be in solid or liquid form. They are firm, can be hermetically sealed by wetting the edge before placing on the cap, and will carry any tinctures or fluid extracts safely into the stomach before dissolving.

Dr. J. M. Phillips, of St. Louis, Mo., is still manufacturing the Phillips' "Perfected" Stomach Tube, the wonderful little Soft Rubber Catheter and his other specialties.

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LEOPOLD TRASBOT

A Journal

AMERICAN VETERINARY REVIEW.

FEBRUARY, 1909.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, December 15, 1908.

TRASBOT'S MONUMENT.—It is a very old custom in every part of the world to raise monuments to the memory of men who during their life had become celebrated in the pursuits of their labors and have made their career remarkable. Great conquerors, greater politicians (?), great captains, explorers, scientific men, physicians, and others have had their monuments. More recently, veterinarians have entered into the race. A few years ago we have had the great unveiling of Nocard's, next year we will have that of Prof. Thomassen at Utrecht, and a while ago I went to that of the late Honorary Director Leopold Trasbot who for many years occupied the chair of Theory and Practice at Alfort and had obtained a well deserved reputation as a teacher, a diagnostician and a pathologist. Crowding of material and limited space did not allow me to speak of this before, as I intended to do.

The monument raised to Trasbot, of which I send a photograph, was inaugurated on the day of the annual meeting of the Societe Centrale when are distributed to the winners, the prizes offered by the Society for the best scientific papers presented to it. The day of the inauguration was splendid and those among our American friends who have visited the Alfort school and promenaded in its handsome park can realize how

perfect the ceremony must have been with the many, many relations, friends, confreres and students who had all come to pay their duty to one who they had known and whose work they had learned to appreciate. Many good speeches were delivered. The monument is very handsome, but simple. The resemblance of the bust is excellent. The epitaph, his name only; every thing is without pretention, and in accordance with the character of the good man that Trasbot was. He was of rather retired and bashful disposition.

* * *

Intra-Dermo Reaction.—Those among our readers who have attended the Congress of Tuberculosis last October, have heard the paper that was presented in the name of Prof. Moussu, relating to a new method to obtain the tuberculin reaction, which a human physician, Dr. Mantoux, had applied in his practice on tuberculous patients and that after him and as a control, the learned professor of Alfort experimented with. Intra-Dermo reaction is the method I refer to. For the benefit of those who may not have been in Washington, permit me to relate the facts concisely. The test consists in the injection through the thickness of the dermis from 1-10 to 1-5 of a cubic centimeter of brute tuberculin diluted to 1-10 in physiologic or distilled water, or in other words from 1 to 2 centigrammes of tuberculin according to size and weight of the animal. In bovines, the injection is made in the thickness of one of the sub-caudal folds and in forty-eight hours is followed by the apparition of a circular œdematous swelling, which doubles, trebles or quadruples the normal thickness of the sub-caudal fold. This local reaction does not give rise to any general thermic manifestations, does not disturb the general health and has very little if any influence on the secretion of milk. The reaction begins about 24 hours after the injection, is at its acme in 48 and starts to pass off from the third to the fourth day. Always absent when applied on healthy animals, it is on the contrary positive when resorted in any species of animals suffering with tuberculosis, bovines, cap-

rines of porcines. In those last the injection is made on the base of the ear. For pigs the intra-dermo reaction is the best test to use, as so far all the other methods used have proved of no real practical value.

To resume, this new method possesses all the advantages of the sub-cutaneous test without having its numerous objections (immobilization of the subjects, repeated takings of the temperature, loss of milk, etc., etc.,) and besides it does not expose to errors similar to those observed in the other modes of diagnosis.

* * *

Value of Tuberculin Reactions.—Let us now resume how the veterinarian is armed to make out a positive diagnosis when in presence of an animal which presents nothing or perhaps only a very doubtful suspicious aspect.

The sub-cutaneous injection, already old and classical method, which, notwithstanding its proofs is, we understand, threatened in its application. Then the cuti-reaction of Vallée, the oculo-reaction of Wolff-Eisner, the dermo reaction of Lignières, the intra-dermo reaction of Moussu, without saying anything of those which might find their indications such as the rhino, the vaginal, the rectal, as long as local reaction to tuberculin is not special to the skin only, but that all mucous membranes are liable to produce it. And now with all that, let us extract from what Vallée has said lately at the Societe Centrale and which seems to resume the whole question.

"What is the diagnostic value of the various methods known?" Practically it seems beyond doubt that as far as cattle are concerned, any positive local reaction, cutaneous or mucous, is a sure sign of tuberculosis. With actinomycosis, tuberculin gives only aborted reaction.

It is positively established that if a positive reaction implies the presence of tuberculosis, with many tuberculous animals, cuti and oculo reactions have failed. With the dermo test of Lignières, 5 animals out of 18 have failed to give Vallée any re-

action, although they reacted with the sub-cutaneous classical method. With the intra-dermo process, out of 7 tuberculous bovines, 4 gave local reactions absolutely positive and far superior to those obtained with cuti or oculo reaction, 7 gave less important reaction, 2 gave a swelling scarcely noticeable, while 2 others free from tuberculosis had a reaction extremely suspicious.

* * *

Conclusions.—"The various methods to obtain local re-"actions cannot be substituted in place of the classical method "of the sub-cutaneous injection, the value of which is no longer "disputed. They may be used in exceptional circumstances, but "not alone, only in association; oculo reaction with the cuti or "the intra-dermo method. But then any doubtful or negative "local result must be followed by the classical sub-cutaneous."

This is very well but what of the law of the legislature of New York State which I heard forbids it and that of Louisiana which I have just found in a daily here: "By Commercial Ca-"ble: New Orleans, Saturday.—This city has won its long war "against the use of the destructive tuberculin serum. The health "board announces the abandonment of the test."—Is that true?

* * *

Rabies Immunization.—The name of Dr. P. Remlinger is ever coming to the front when the subject of Rabies is spoken of, and every day, communications come from him in relation to it. Many have been his researches on vaccination and immunization. Those that he made against rabies in sheep, his attempts with the use of his mixture of anti-rabid serum and fixed virus, his experiments with intravenous inoculation are all well known. Some time ago, he related his observations on the anti-rabid vaccination by peritoneal injections, where it is stated that rabid virus is rapidly destroyed when injected in the peritoneum and that not only no animal dies from such injection but acquires a solid and lasting immunity and where he concluded that to the practical point of view of animal vaccination,

the brutal intra-peritoneal inoculation of the brain of a dead rabid rabbit might prove a very simple method, however it yet demands further inquiries.

Continuing on the same question of vaccination, against rabies in horses, another communication was made by Dr. Remlinger, which has also a great importance. It relates to the use of a mixture of rabid virus and anti-rabid serum which he had the occasion to test with four horses. Two of these had been bitten by animals which were positively rabid. For the other two, there was only very strong suspicion of their being so affected. Described in detail in the communication made before the Societe Centrale, it is shown that it is no longer by intravenous or intra-peritoneal injections, but simply by sub-cutaneous made in the flank that those horses were treated. On the first horse, treatment was begun on the sixth day after being bitten. He received successively 200, 300, and then 200 cubic centimeters, altogether 700 c. c. of the mixture of anti-rabid serum and centesimal emulsion of fixed virus, with a slight excess of virus. Kept at rest and away from any exposure for 5 or 6 weeks, the animal escaped infection. In the second horse, the treatment was begun 10 days after being badly bitten. He received 300 and 300 c. c. of the mixture. Same care and after treatment. Same results. For these two horses there was perfect evidence that the injuries had been inflicted by rabid animals.

On the third horse, five days had elapsed since he had been bitten by a dog which had shown signs of furious rabies. Unfortunately the dog ran away and disappeared. This horse received 700 c. c. of mixture. He escaped rabies. He was treated 18 months ago and is well.

The fourth horse has been bitten by a dog 6 days before. The dog had bitten people, given evidence of furious rabies, has been shot and sent to the rendering factory. The horse received 700 c. c. of the same mixture, in two doses, and one year after was still in good health.

Of course these four cases are exceptional and perhaps not conclusive, but they are worth considering. The treatment is harmless and cases show that it can be started 5 and even 10 days from the day the biting from the rabid animal has taken place.

* * *

Ovariotomy in Goats.—Castration of female goats, which is said to be gaining ground in Switzerland, has it seems been performed for the first time in Roumania by Prof. Babès and Dr. Oceanu of Bucarest. The analysis of the milk of the castrated animals being made by Dr. Babès before and after the operation.

The success and the effects of the operation were such that other countries where female goats are numerous and used extensively for their milk have also resorted to it.

The operation being made through the flanks by steps similar to those of the old castration of cows. Recovery is said to be complete in eight days. Prof Babès and Oceanu have made known their modus operandi some time ago and presented the conclusions derived from the extensive experiments and observations that they have made.

Among the conclusions, the principal are

1. By this operation the peculiar hircinous odor of the milk is removed. Ovariotomy is a much simpler method, less expensive and more rapid to obtain this result than the most careful selection of animals for breeding.

2. The secretion of the milk is increased and lasts much longer. With animals which have been ovariotomized, it has been as long as 13 and 15 months on an average.

3. Fattening and improving in condition of the meat is obtained. The flesh being of superior quality, without bad taste nor characteristic odor.

4. The lacteal production is increased.

5. The physiological constituents of the milk are advantageously modified, by the increase of the quantity of butter, of caseine and phosphoric acid with a reduction in the lactose.

The two veterinarians of Roumania deserve much credit for calling the attention of their confreres and of breeders to those important results.

* * *

Bibliographical Notices.—Friedberger and Frohner's *Veterinary Pathology* (authorized translation) by Mr. H. Hayes, F. R. C. V. S., with notes on Bacteriology by Prof. R. Tanner Hewlett, M. D., F. R. C. P., etc., edited by John Dunstan, M. R. C. V. S., Professor at the Royal (Dick) Veterinary College, Edinburgh, and sold by W. T. Keener & Co. of Wabash Avenue, Chicago, is before me.

It is a translation of the excellent German work, which was produced in French by Profs. Cadiot and Trasbot and afterwards by Prof. Zuill in the United States in 1895. It is presented now with the authorization from the German authors as the latest, revised and enlarged sixth edition.

The value of the work has been well known for years and it has been considered as one of the best works on Veterinary Pathology, it has been the best text book in veterinary schools and the one with which students had become most familiar. Practitioners have consulted it and not only refreshed their minds but learned by reading it, and there can be no doubt that as the work is to-day brought to modern standard, this new edition will soon find its way in the library of every veterinarian reading English.

There are in every country, where veterinary science is cultivated, special works on internal pathology. Germany, France, Italy, and even the United States have their own and the names of their authors are certainly familiar to all those who are trying to keep themselves posted and follow the progress that veterinary pathology makes; and the works that have been published in those countries have received the scientific appreciation

that they well deserved. But when one comes to be reproduced in several countries, in various languages, no one can refuse to accept it as one of superior value and as such we feel assured that Hayes' translation will receive in America a hearty welcome.

After a preface from Prof. Frohner and one from Mr. Hayes, who presents the book to the public, there is first, a kind of introduction of the metric system, followed by the contents of the book, which is divided in two volumes. Leaving aside the division of infective and non-infective diseases, adopted in the previous translation. We find, in 19 chapters which fill the first volume, diseases of the organs of digestion, of the œsophagus, stomach, liver, peritoneum, spleen, urinary organs, sexual organs, heart and large blood vessels, skin, locomotory organs, trichinosis in swine, measles in domestic animals, Miescher's tubes or Rainey's corpuscles, diseases of the nervous system, of the spinal cord, of its membranes, of the peripheral nerves, neurosis without anatomical basis, and an appendix to diseases of the nervous system.

This first volume covers 731 pages.

In volume No. 2, we have only eight chapters, six of which cover the ground of the entire respiratory apparatus, the seventh treats of chronic constitutional diseases, the eighth of infective or infectious diseases. There are at the end of the volume: An addenda whose perusal will prove of great interest, a few lines on the terms INFECTION and CONTAGIUM by H. Hayes and a very concise but nevertheless excellent preliminary treatise on Bacteriology by Prof. R. Tanner Hewlett of King's College, London.

The material contained in volume No. 2 covers 681 pages.

Both volumes cost only eight dollars net.

* * *

The Manuel D'Anatomie et de Dissection du Cheval (*Manual of Anatomy and Dissection of the Horse*) is a new work by Director Gustave Barrier and Prof. Gabriel Petit, both

of the Alfort school. The work is to be composed of two volumes. The first will treat of the function of locomotion and the second of the other apparatuses. The first volume is divided into two fasciculi. The first fasciculus only is out. It treats of Osteology.

The object of the manual is not to take the place of the excellent works existing, but to complete at least that which is classical in all the veterinary schools of the world, this is Chauveau's anatomy as it is called by all. To complete it in giving the students an opportunity to impress better on their minds, by showing *de visu* the points which have been presented to them in the lectures, descriptions which they have heard but which they have not seen. If the classical works are something difficult to appreciate, dry to read and study from, the manual, a guide handsomely illustrated, will allow them as well as the practitioner, to see at a glance by the examination of a plate, things which would demand a long perusal from the classical book.

This first fasciculus is divided into 5 chapters: the skeleton in general, the head, the hyoid apparatus, the trunk and the extremities. In the second chapter, that of the head, we find it divided in two parts, one where the descriptions and illustrations will show that region first as a whole organ, considered under its various faces, with the sinuses and under six different sections, while in the other the specific study of each individual bone of the head is given. The description of the other bones is found in the other chapters. Here again plenty of illustrations.

The peculiarities presented by the manual are essentially important:

1. A general as well as a specific description of each bone, very concise and without unnecessary additional phraseology.

2. Illustrations to which the reader is referred and in which he will find every peculiarity belonging to the description of the bone.

When one will take in consideration that those illustrations, 116 in number, are made from natural specimens, and that they

are possessed of qualities not generally found in similar reproductions as far as neatness, clearness, correctness and artistic work, it will be understood how useful and advantageous this manual will be. Without these plates, it would be incomplete.

No doubt the book will become classical at once, provided the first volume will soon be completed and the second will not be too long in making its appearance.

The editors are Asselin and Houzeau, the Parisian publishing house for veterinary books. They have spared no expense to do justice to the work and yet offer it at the price of three dollars, (15 francs). Although it is written in French, every one, even the one poorly acquainted with the French lauguage, can if he had a slight knowledge of anatomical terms read it and understand the nomenclature of the plates.

Prof. Doctor Th. Kitt of Munich has published a good German work which by authorization has been translated by Dr. W. W. Cadbury, Assistant Demonstrator of Pathology in the University of Pennsylvania, and edited with notes and additional illustrations by Dr. Allen J. Smith, Professor of Pathology in the same university. The work has for title: *"Text Book of Comparative General Pathology"* and is published in America by the firm W. T. Keener & Co. of Chicago.

This is a very good introduction. The book is written specially for veterinary students and practitioners, who have had some difficulty in looking into works on the subject of veterinary (let us say comparative), general pathology, as such works are rare. But as the translators have stated that Kitt's work was practically the only text book in general veterinary pathology published, I may be permitted to say that they ought to have added to their sentence two words "in German." The first volume of Cadeac's Encyclopedia on "Pathologie générale et Anatomie pathologique générale" of domestic animals published in 1893 make it that there were at least two text books on this same subject, one in German and one in French. Now there are three!

This little correction was necessary. And once made, what of the American work?

There can be but one answer—It fills a great need. Before it, our students had to consult works on human medicine. For many it was difficult to apply to comparative medicine the information that they could find in a human medical library. This great difficulty is now out of the way and the American writers deserve great credit for their translation, to which they have added notes of their own, which they have made thoroughly up to date and which their publishers have presented in a most neat manner.

After prefaces from the authors, the book is divided into so many headings following the introduction: history of pathology, disposition towards diseases, congenital and inherited diseases, causes of diseases, course and terminations, circulatory disturbances, metabolism, retrograde changes . . . processes of repairs and new formations, functional disturbances. The whole covering 465 pages, with 131 illustrations in the text and four colored plates which are very good and correct. Comparative Pathology general is certainly a valuable addition to the veterinary literature and will prove a great help to students.

* * *

Some twenty-one years ago Mr. William Hunting, F. R. C. V. S., published a little book on Glanders. To-day the English veterinary literature is counting from the same author another work which treats of the same subject up to date, under the title of *Glanders. A Clinical Treatise.*

Yes, it is a clinical treatise, for the great experience of the author and the position that he has held and still holds among the sanitary veterinarians of England, has given him opportunities that few men would ever have, and it is his many years of practical observations, his tellings of the thousands of glanderous horses that he has seen. of the 600 post mortem examinations that he has witnessed, that the book is made up and no one can

expect any thing else but a superior work, one which is bound to remain an authority for years to come and in which the profession will always look for when searching truthful facts and solid information.

To the quality of the contents, the publishers have given a handsome appearance and the book looks more fitted for ornamenting the table of a fashionable office than the shelf of a book case. But if one opens it, he will find in lucid and succinct description of every point connected with glanders, etiology, distribution and prevalence, symptoms, lesions, diagnosis, mallein, cure and recovery, prevention, legislation—and an appendix on glanders in man.

Three dark plates are found within the text, illustrating farcy and epizootic lymphangitis and at the back there are 14 colored plates of the various lesions met with in glanders. Among these, many, the majority in fact, are perfect and as one who has been familiar with similar, I can safely say that they are as true as nature.

Glanders will no doubt command a great success.

It is published by H. W. Brown, 20 Fulman Road S. W., London.

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Concise Bibliographical Acknowledgment.—The *Agricultural Journal of the Cape of Good Hope* (No. 3) contains a long article from the director of the veterinary laboratory at Grahamstown, W. Robertson, M. R. C. V. S., on tuberculosis in animals and in its relation to public health, one on the transmissibility of tuberculosis through the vehicle of meat or milk and one on tuberculosis from the meat inspection point of view: (No. 4) gives a summary of the outbreaks of contagious and infectious animal diseases by Chief Veterinarian J. D. Boschwick where it is worth noticing that but 2 cases of epizootic lymphangitis, 2 of glanders and one of tuberculosis only are recorded against 286 of lung sickness, 5 or 6 of sponsziekte, 9 of Redwater, 7 of scabies and 6 of anthrax.

THE VADE MECUM OF THE VETERINARIAN: by M. M. Mollereau, Porcher and Nicholas is in its third edition, a rather good proof of its qualities. It is a general, concise but complete treatise (in French) on veterinary pharmacology and therapeutique up to date, whose value can be appreciated at a glance on the table of contents, where in the abundance of matters treated, practitioners will find all the information they may desire.

The second part of Vol. I of "ZEITSCHRIFTE FUR WISSENSCHAFTLICHE UND PRAKTISCHE VETERINARMEDICIN" published at the Institute of Dorpat is also at hand. It is a Russian publication, of which I regret to be unable to speak of, as I am sure it deserves.

A. L.

EXAMPLES OF EFFICIENT STATE SANITARY SERVICE.

In the face of the grave menace to the live stock industry in November, by the appearance of foot-and-mouth disease in our midst, the REVIEW in its December issue, expressed congratulations to the live stock interests of the country, in the fact that the principal centres of infection were in two of the states best equipped to effectively deal with the situation, viz.: New York and Pennsylvania, and had unlimited confidence in the manner in which those two great commonwealths would meet and deal with it. In January the REVIEW had the greater pleasure of expressing a realization of its hopes and confidence in the effective work that had been performed and the results that had been realized under the capable direction of those intrusted with the welfare of the live stock of the nation and of the individual states affected.

In the state of New York, Hon. Raymond A. Pearson, Commissioner of Agriculture, was alive to the situation.

At the time of the first outbreak, which occurred in his neighboring state, Pennsylvania, having been informed of the fact that there were reasons to think that infected cattle had gone into Pennsylvania from Buffalo, N. Y., he immediately, as early as November 10, 1908, mustered some of his forces there, who, under his personal direction, were patrolling the suspected district for several days before the outbreak actually occurred in that state. When the disease finally made its appearance, they were there, waiting for it, and quarantine measures were at once promulgated. Five counties in western New York were tied up by a rigid quarantine order issued by the Department of Agriculture of the state of New York, dated November 19, 1908, which was posted in all parts of the five counties on the morning of November 20. On the same day, the federal quarantine took effect on the state line, being a precautionary measure taken by the federal authorities.

The state quarantine of the affected counties was so well carried out that federal quarantine has not served to prevent the movement of any live stock or infected material from the five counties into another state so far as is known, as there was no such movement from any of the five counties to any other part of the state; as the state quarantine order prevented the movement of stock over any public highway within the said counties.

In regard to the cleansing and disinfecting of cars, pens, chutes, etc., the state authorities required it to be done immediately after use throughout the entire state, although no time limit was set by the federal government (except that they be done before leaving the state), so zealous were the state authorities in the work of purifying their own atmosphere of the plague.

Immediately after the appearance of the disease in the state of New York, Commissioner Pearson appointed a number of additional veterinarians, including a few of the Bureau men in order to give the latter, authority to work under the state law; which law, proved sufficient for the emergency, clothing the state veterinarians and the Bureau men with sufficient authority for the enforcement of the law and all necessary meas-

ures, the federal law being without force in any local application. The federal quarantine besides preventing stock from crossing the state line prohibited their movement from other parts of the state which at no time had been infected. This simultaneous application of federal and state laws proved very effectual. Since a period of time several days prior to the outbreak of foot-and-mouth disease in New York state, until early in January, 1909, the commissioner has had practically continuously on the ground where the outbreak occurred, as Special Expert, Prof. James Law of Ithaca, N. Y., whose experience with, and knowledge of foot-and-mouth disease abroad, and during the outbreaks in this country in 1870 and again in New England six years ago, has made his advice in this campaign against the scourge invaluable. Indeed Commissioner Pearson has the highest praise to offer for his entire force of veterinarians; both those regularly employed by the department, and those temporarily appointed in the emergency. The five counties referred to are still under quarantine by the Department of Agriculture.

In Pennsylvania, where the work is in charge of the State Veterinarian, a farmer living near Danville noticed, November 3, that some of his cattle were acting peculiarly. They were slobbering and appeared sick. The next day he sent for Dr. J. Orville Reed, of Danville, who visited the farm November 5, and on investigation found that the symptoms were those of foot-and-mouth disease. He reported the condition to Harrisburg to the State Livestock Sanitary Board and Friday, November 7, Dr. T. Edward Munce went to Danville and confirmed Dr. Reed's suspicion. He reported to Dr. Leonard Pearson in Philadelphia Saturday morning that the disease was probably foot-and-mouth disease. Dr. Pearson went at once to Danville and on investigation was convinced of the seriousness of the condition. The herd and premises were promptly quarantined. In order to verify the diagnosis the disease was transmitted to two apparently healthy animals on the farm. One of these developed a well-marked case of the disease in 48 hours. The other showed it in about four days.

The ten veterinarians employed by the state as meat inspectors were called to Danville Sunday, November 9, and were put to work at once inspecting other farms for the disease. It was found that the first animal that showed symptoms of the disease was a small bull purchased in Buffalo, November 3. Other farmers had purchased animals in Buffalo at the same time and had taken them to different farms in the vicinity of Danville. These farms were all inspected and the same disease was found on seven of them near Danville and on three farms near Milton. Nearly every case was traced to the Buffalo purchase. All these farms were immediately quarantined and at the same time the four counties in the immediate vicinity were placed under quarantine. A circular letter was sent to every registered veterinarian in Pennsylvania warning him of the presence of foot-and-mouth disease and urging the importance of being on the lookout for the disease in his locality. The prevalence of the disease gave rise to an extensive demand and need for information concerning it. Circular No. 15 on Aphthous Fever or Foot-and-Mouth Disease was issued by the State Livestock Sanitary Board from Harrisburg, December 1, 1908. The state authorities, in unison with the federal government, worked heroically in the quarantined counties and the result speaks volumes for those in charge of the campaign.

In his message to the General Assembly of the commonwealth of Pennsylvania issued from the Executive Chamber, Harrisburg, January 5, 1909, Governor Edwin S. Stuart has the following to say relative to the State Livestock Sanitary Board:

" This board, of which the State Veterinarian is the executive officer, includes in its membership the Governor, the Secretary of Agriculture, and the Dairy and Food Commissioner. It is the function of this board to investigate and control the diseases of domestic animals, to assist in the development of animal husbandry, to supervise horse-breeding, to conduct a meat hygiene service, to exercise a system of dairy inspection, and to supervise the sanitation of the sources of milk supply. By keeping vigi-

lant watch over the health of animals, and by guarding them from infectious and other preventable diseases, the investment of $150,000,000 in farm animals is protected, animal husbandry is encouraged, and the conservation of the fertility of the soil is promoted.

An instance of the recent work of the State Veterinarian is of sufficient public importance to merit special notice. About the first of November, several carloads of cattle infected with aphthous fever were shipped to different places in Pennsylvania. Aphthous fever is especially dangerous and injurious because of the facility and rapidity with which it spreads. Within a week, nine outbreaks of the disease were found, affecting cattle in fourteen counties. Each of these outbreaks was traced to a separate shipment of cattle from the stockyards at East Buffalo. A single outbreak of foot-and-mouth disease constitutes a grave and difficult problem; nine outbreaks in different localities are enough to tax the utmost resources of the largest and best organized veterinary sanitary service. At a special meeting of the State Livestock Sanitary Board, the State Veterinarian was given authority to take such action as would be necessary to exterminate the disease, and he was authorized to invite the co-operation of the United States Veterinary Service. It was decided that the most prompt and economic method of eradicating the outbreak would be to destroy the infected herds and disinfect the premises, thus effacing all local centres from which contagion might spread. Under the terms of co-operation, one-third of the indemnity, and of the expenses of appraisal, burial and disinfection, is to be paid by Pennsylvania, and the remaining two-thirds by the United States. The work of repressing this dangerous disease has proceeded with the utmost dispatch and thoroughness.

The British government has refused to permit the shipment of cattle to Great Britain from the port of Philadelphia during the existence of the disease in Pennsylvania. Similar prohibitions apply to the ports of New York and Baltimore. The Federal government has forbidden the removal from Pennsylvania

of cattle, sheep, goats, and swine, and undisinfected hay, straw, hides, and wool. These quarantine restrictions cause annoyance and loss, which the State Veterinarian is endeavoring to minimize by the application of the most effective methods for the extermination of this disease.

As it is impossible to anticipate the cost of eradicating this disease, I respectfully recommend that an appropriation be made, sufficient in amount to enable the State Veterinarian to meet the necessary expenditures for emergency work during this crisis."

From the foregoing account of the work done in these two great states the importance of being properly prepared and equipped becomes apparent and should arouse to action any states in which the live stock interests may not be so fortunately safeguarded.

It is therefore earnestly hoped that the present legislative bodies will not be permitted to return to their homes without enacting sanitary service laws in the states that are in need of them.

The great reliance that the Commissioner of Agriculture and the Governor in two of the largest states in the union, places in the veterinary profession under such stress as has been recently experienced, should stimulate its leaders to go confidently before their legislators and tell them the needs in their respective states.

How Dogs Are Pampered.—A funny sight often to be seen nowadays is that of a dog sitting on the front seat of a motor car with its eyes completely hidden by a pair of large goggles. This latest fad is the result of overfondness on the part of persons who like to flatter themselves that they are "in society." It certainly looks fashionable, but it would be interesting to know what the poor dog thinks about it. The average dog cannot endure any kind of bandage on his head. Any intelligent dog can be trusted to take care of his own eyes when he is in a motor car. If he finds the rush of air too strong to be comfortable, he either half closes his eyes or turns himself round. The uselessness of this fad therefore at once becomes apparent.—(*Tit-Bits.*)

ORIGINAL ARTICLES.

THE VETERINARIAN AND HIS PATIENTS IN LITERATURE.

By T. B. Rogers, D.V.S., Woodbury, N. J.

Read before the Veterinary Medical Association of New York City, Nov. 4, 1908.

The early history of our profession must be full of interest to all of us; indeed, I cannot conceive a more interesting object of inquiry than to trace step by step its rise from an absolute empiricism to its position of to-day. Unfortunately this is only in small part possible, we must content ourselves with a gleam here and there and putting this patch-work together try to form a mental picture of the object of our desire. Sometimes the root of a word will aid us, thus the word daughter comes from an Aryan word signifying a milkmaid and as far back as we can trace this root we know that cattle were kept for their milk and the inference is that their ailments received attention.

Judging from the subordinate position of women in those ancient times, it is probable that such care as was tendered the sick animal came from woman and that she was the first veterinarian. In the Aryan hymn to the horse Circa, 2000 B. C., notice is taken of the occasional presence of an eighth carpal bone, showing that equine anatomy was then studied.

In the laws of Manu (Circa, 1500 B. C.) it is written "The doctor who mishandles animals shall receive the lowest while he who mistreats mankind shall receive the highest punishment."

At about the same period we have a vivid picture of canine rabies and hydrophobia; the treatment consisted in scarifying and squeezing out the wound, then cauterizing it with boiling butter. The first Grecian poet furnishes us with a picture of an early Aryan migration toward Greece, and it is so interesting that I have quoted it "Their warriors travelled on foot, their women and children in two-wheeled ox carts, herdsmen were following with their kine, four of them, and nine dogs, fleet

of foot, came up behind; two terrible lions seized the roaring bull, who bellowed mightily as they attacked him; the lions rent the great bull's hide, and were devouring his vitals and his black blood while the herdsmen in vain urged on their dogs, for these shrank from biting the lions, but stood hard by and barked (Iliad, 1000 B. C.)" I should like a picture of this scene, the arid steppe, the Greek-faced sun-blackened travellers, the wolfish half domesticated dogs, with ruffled hair and red-mouthed, barking a half-hearted defiance, the cattle growing red-eyed with the smell of blood and threatening to stampede.

Vultures swing in from the brazen sky in ever narrowing circles, and when the lions have eaten their fill and walked off unmolested by man or dog they will fight over the carcass. It is a picture worth painting, for from the loins of these men and their brothers shall come the culture of Greece. Demosthenes, the orator; Plato, the philosopher, the painter and the sculptor, Hippocrates (B. C. 460-377) noted the condition when the antero external angle of the ilium slipped through the facia lata in lean cattle, producing apparent hip-joint dislocation; he was the author of many medical aphorisms that have been preserved to this day, notably "when a patient has a good appetite but does not improve thereby it is a bad symptom." Aristotle did much dissection and was the father of comparative anatomy, he noticed measles of swine, tetanus and many other diseases of the horse and glanders of the ass. Xenophon (349-259 B. C.) has left a useful treatise on horsemanship and on the conservation of the hoof (important at this period as shoeing was unknown to the Greeks). Absyrtus, who lived at Brusa in Bythynia was an early Greek veterinarian—his grandsire, Demetrus, also a veterinarian, noted the absence of the gall bladder in the horse. The Romans instituted military veterinary hospitals in the second century of the Christian era. Cato the censor wrote on veterinary medicine. Vegetius (Fourth Cent. A. D.) wrote a somewhat encyclopedic treatise on veterinary medicine and about this time the word veterinarian first appears. Virgil in his Georgics writes of plagues among animals.

Under the Roman law, land, horses, oxen and slaves were one kind of property (real) as distinguished from all others (personal), and it would appear that at this time live stock represented and were employed as money. Vegetius (A. D. 550?) has left us a complete treatise on veterinary medicine, he writes of contracted tendons and of horses and mules walking on the front of the hoof. He gives various prescriptions for nourishing the hoofs. These are to be rubbed around the coronets and over the feet; at the wane of the moon the sole and hoof must be trimmed with a paring iron, which allows the heat to escape, cools and refreshes them and makes them the stronger. He leaves us a description of the horses of the Huns "Great crooked head, projecting eyes, small nostrils, broad jaws, and cheek bones, strong and stiff neck, mane hanging to the knees, large ribs, crooked spine, strong bushy tail, strong legs, the lower part of their feet small, and full spreading hoofs, their flanks hollow and bodies angular, no roundness in their quarters or brawny development of their muscles, their stature is rather in length than height, the bones are large, there is a graceful leanness, and their very deformity constitutes their beauty. Their temper and disposition are moderate and prudent and they are patient of wounds (Vegetii Renati Artis Vet.).

Lucretius (99 B. C.) approaches the atomic theory with great distinctness: "The first beginnings, the atoms, are indestructible, and into them all things are to be resolved at last." "Bodies are partly atoms and partly combinations of atoms." His vaguely grand conception of the atoms falling eternally through space suggested the nebular hypothesis to Kant" (Tyndall, Belfast address).

Shoeing was unknown to the early Greeks and Romans; the Druids were the first horse shoers, and if we wish to realize how much shoeing means to the horse and to the cavalryman we have but to read ancient history and note how the cavalry failed to follow up their initial advantages and how their usefullness was diminished with the length of the campaign, their sore-footed horses could not compete with the infantry on their long

forced marches and soon they became an impediment rather than advantage. Shoes of these early periods are small, narrow and light metalled, having six nail holes countersunk somewhat to accommodate the large nail heads. The evident absence of a horn on the early anvil causes an irregularity of contour, the shoes bulging at the nail holes, and I have been struck with the resemblance of these early shoes to those made by students at the Veterinary Department University of Pennsylvania when practical farriery was part of the course. Later we get evidences of a toe clip and calkins, and many of these old shoes closely resemble the modern shoe, the addition of two nail holes may not be an improvement. Every craft in those old days had its patron saint, and the good genius of the farrier was St. Eloy.

Chaucer in the "Friar's Tale" reads "That was well twight (pulled) my own Liard boy; I pray God save thy body and St. Eloy." The saint worked many miracles among diseased animals.

Some years ago a very interesting mural painting was discovered under a coat of whitewash on a church wall in Highworth, Wiltshire, England. It shows St. Eloy at his forge, a shoeing hammer in his hand, around him hang shoes with clumsy calkins having only four nail holes in each shoe. The saint wears a Bishop's mitre and has fiery red hair—at the foot of the picture is seen the devil fleeing from the good man (Fleming Horse Shoeing).

In very early Welsh laws it is ordained that there are three *one-footed* animals, a horse, a hawk and a greyhound; whosoever shall break the leg of any one of them shall pay his full worth. "The farrier was an important personage in this age; he was entitled to drink from the first vessel brought into the hall, and his seat in the palace was on the end of the bench near the priest of the household; he was entitled to the heads of the cattle slaughtered at the palace, and also to their feet"—"the fire of a hamlet smithy shall be nine paces from the hamlet and shall have a covering of broom or sod thereon."

In the sixth century Saint Benedict, good man, was tempted of the devil in the form of a mulo-medicinus (a veterinarian).

Now, we can stand a good deal but this is the limit and while I do not desire to question the veracity of the holy man I fear that he made the statement after tarrying too long over his cerevisiam, but whether, or no, the stream of calumny was started, increasing with its flow, and insinuations that members of the profession have been missed leaving only a strong smell of brimstone in their bed chambers; or that they were transformed after death into gray mules must be suffered in silence.

Charlemagne's expedition against the Huns in A. D. 791 was embarassed by a pestilence among his horses nine-tenths of them dying and in his age veterinary surgery was practised by women.

In 1598 the "Dispensatory" of Valerius Cordus (German) enumerates wolf liver, fox lung, the spine of the deer, the inner membrane of the chicken's stomach (ingluvin) gall stones of the ox, and last but not least adeps humanis, in its materia medica.

"One of the common ingredients of Roman love philters was the "Hippomane." Pliny states that a brazen mare, in the casting of which Hippomane had been incorporated, caused stallions brought in its vicinity to be transported with passion." Pliny further says that the Hippomane was a fleshy protuberance found on the forehead of the newly born colt, which is swallowed before the colt is allowed to suckle (probably part of afterbirth eaten by the mare). (Peters' Hist. of Ancient Pharmacy).

Among the ingredients of the "Diasaterion" of the Cordic Dispensatory of 1546 are the testicles of the fox, showing that the Brown Sequard idea is not a thing of yesterday.

"The Hohenstauffen Emperor Fred. II. about 1220 A. D. wrote an elaborate treatise on falconry showing a profound acquaintance with avian anatomy, he also aided Jordanus Refus, his chief of stud, in the composition of a treatise on veterinary surgery." In his reign an edict was given forth prohibiting the sale of diseased meat (Fort. Med. Econ. in Middle Ages).

"Bishop Theodoric (Circa, 1262) wrote on equine diseases and the manuscript is still extant" (Ibid.).

"An Italian library possesses in manuscript a translation by Magister Moyses of Palermo of a suppositious work of Hippocrates on diseases of horses (Ibid.).

The age of chivalry gave a great impetus to everything pertaining to the horse and many of the curious words used in our art are to be traced to this time. In the thirteenth century the King of Aragon in appointing a maréchal (farrier) ordained "which maréchal shall be near our person when we journey, furnished with nails and shoes and other necessaries" and in the next century is found an ordinance prescribing his attention at morning and evening stables.

In London during the reign of Edward I. the price prescribed for shoeing was—common shoes six cents; for a war horse twelve cents, for removing a shoe two cents. Many superstitions center around the horse shoe. The Dames D'Espagne of Amsterdam placed shoes over their thresholds whether as amulets or advertisements, the chronicler does not state. Butler in his "Hudibras" says:

"Chase evil spirits away by dint of cickle, horse shoe, hollow flint."

Another curious belief was that certain herbs had the power to draw the shoes from horses' feet and in the sixteenth century Du Bartas blames the moon wort for drawing shoes.

"And horse, that feeding on the grassy hills,
Tread upon moon wort with their hollow heeles,
Though lately shod, at night go barefoot home
Their master musing where their shoes become.
O moon wort! tell us where thou hid'st the smith
Hammer and pincers thou unshoo'st them with.

Si'th the best farrier cannot set a shoo
So sure, but thou (so shortly) canst undoo."

Chaucer is not prolific in veterinary allusions, he mentions the trot, amble and pace of the horse showing that side-wheelers were in demand for saddle purposes in his time. In the prologue to the Canterbury Tales he tells us that the Prioress Madam Eglentyne swore by the patron saint of farriers St. Eloy and in the prologue to the tale of the Pardoner (an errant priest selling pardons or indulgences) we are told that he has a shoulder bone from a holy Jewish sheep and if the bone be washed in the water of any well it will heal cow, calf, sheep or ox that drinks the water, laying special stress on the healing of sheep that are afflicted with pox or scab, he further states that if the farmer will drink of this water before cock crow his beasts and store shall multiply. We learn also that in this age horses' bridles were hung with bells (Born 1328).

Shakespeare like Chaucer does not seem to have been a horseman, his allusions to matters equine seem to be those of a city-bred dramatist, rather than what would be expected of a man born and raised in the pleasant Warwickshire meadows.

In the "Taming of the Shrew" Petruchio comes to woo Katherine "in a new hat and an old jerkin, a pair of breeches thrice turned, a pair of boots that have been candle cases, one buckled one laced. His horse hipped with an old mothy saddle and stirrups of no kindred, besides possessed with the glanders and like to mose in the chine, troubled with lampass, infected with the fashions, full of wind galls, sped with spavins, raied with the yellows, past cure of the fives, stark spoiled with the staggers begnawn with the bots, swayed in the back and shoulder shotten, near-legged before, and with a half checked bit and a head stall of sheep's leather, which being restrained to keep him from stumbling hath been often burst and now repaired with knots, one girth, six times pieced, and a woman's crupper of velure which hath two letters of her name fairly set down with studs, and here and there pieced with pack thread (Taming of the Shrew Act III.). In Measure for Measure it is asked "Does your lordship intend to geld and spay all the youth of the country?"

In Venus and Adonis we have the following exquisite picture of a horse:

> Look! when a painter would surpass the life,
> In limning out a well proportioned steed,
> His art with nature's workmanship at strife
> As if the dead the living should exceed
> So did this horse exceed a common one
> In shape, in courage, color, pace and bone.
>
> Round hoofed, short jointed, fetlocks shag and long
> Broad breast, full eye, small head and nostril wide,
> High crest, short ears, straight legs and passing strong,
> Thin mane, thick tail, broad buttock, tender hide.
> Look! what a horse should have he did not lack
> Save a proud rider on so brave a back.

Until a comparatively recent period in England if a horse or other domesticated animal was the cause of death or bodily injury to a person, the animal was forfeit to the ecclesiastical courts and was termed a "Deodand," a gift to God; it was supposed to be sold and the proceeds distributed to the poor as alms. A similar custom was prevalent in Mosaic times for it was ordained that "if an ox gored a man that he died, the ox should be stoned to death and the flesh should not be eaten." I have somewhere read of the trial and conviction of an animal (I think a bear) for murder, but I cannot at this writing lay my hand on the authority. These customs have probably an early origin going back to the time when the difference between man and his little brother the animal was less than it is now; African folk-lore stories, and such ancient romances as that of Reynard the Fox, show that to early man the animal was regarded as simply lower than the man, not essentially different from him. In a footnote to an old edition of Pepys Diary—Pepys you will remember was Secretary to the Admiralty in the reign of Charles II., and was on terms of friendship with Admiral Penn and his son William—I find an early notice of traumatic peri-

carditis of cattle. The Scotch peasants finding sharp pieces of flint in the hearts of some of their cattle, believed that they were shot there by the elves or fairies and termed such beasts "elf shotten."

In Ben Johnson's Bartholomew Fair, first staged about 1614, we find two interesting allusions to our patients, thus: "Knockem, How now, my galloway nag, the staggers, give him a slit in the forehead, a needle and thread to stitch up his ears, I'd cure him now an I had it, with a little butter and garlic, long pepper and grains" (probably grains of paradise) "Where's my horn? I'll give him a mash presently shall take away the dizzyness." Again: My delicate dark chestnut with fine lean head, large forehead, round eyes, even mouth, sharp ears, long neck, thin crest, close withers, plain back, deep sides, short fillets and full flanks, with a round belly, a plump buttock, large thighs, knit knees, straight legs, short pasterns, smooth hoofs, and short heels." Another allusion from this period, I think from Beaumont & Fletcher but am trusting my memory: Who will our palfreys slick with wisps of straw, and in their manger put them oats enough and never grease their teeth with candle snuff." A note states that thievish 'ostlers thus greased the teeth to get paid for feed the animal did not eat through nausea.

Coming down more nearly to our own times we may find scattered throughout the novels of the nineteenth century many allusions to our art, thus, in Scott's Rob Roy we find Diana Verno saying to Frank Obaldistone, "and you cannot shoe a horse or cut his mane or tail, 'or worm a dog or crop his ears or cut his dew claws,"' and again "Never to have heard of Markham the most celebrated author on farriery then I fear you are a stranger to the more modern names of Gibson and Bartlett." I suppose you can neither give a ball nor a mash nor a horn. In the Bride of Lammermoor Bucklaw recommends the application of a freshly flayed toad to a ring bone. In Middlemarch we have the picture of the oblique-eyed Horrocks, M. R. C. V. S., riding with Fred Vincy to the fair, and while Hor-

rocks evidently meant to get his commission coming and going and was not in business for his health, I always regretted that he rode out of the story in one chapter leaving behind him a strong mingled odor of British brandy and James' blister, while the somewhat weak-kneed medical hero Dr. Lydgate meanders on to the end, dying in the odor of professional sanctity.

The worst thing that Carlyle can say of Marat, that arch devil of the French Revolution, is, not that he made the gutters of Paris run crimson with the best blood of France, not that he was a pusillanimous enemy and a luke warm friend but that he was at one period of his career a "dog doctor."

In Harry Hieover's "Stable Talk and Table Talk," a collection of English Sporting Essays (Circa, 1840), we are introduced to Timothy Turnemback, V. S., the veterinarian at Nickems' Equine Repository. Timothy scalds them when Nickem says scald, and passes them when that high-minded gentleman says pass. Some of us have met both Timothy and Nickem. The sporting novels, "Mr. Sponge's Sporting Tour" and "Mr. Romford's Hounds," furnish a few slurring allusions to our profession, and I must own that only once in my varied reading have I found a favorable allusion to our craft and that was in a French novel, I think by Du Boisgobey. Here a little wandering musician accumulates enough money to buy a cow and goes fearfully into the presence of a big French veterinarian with the request that he select one for him. The kindly, rough doctor picks him out a good one, without money or price for his services and sends him on his way rejoicing. This is French, they manage things better in France.

In those veracious chronicles the Ingoldsby Legends we learn that the Baron of Shurland, being told by a witch that his good steed, Grey Dolphin, having just saved his master's life, should yet be the means of his losing it.

"He turned and gazed at Dolphin with the scrutinizing eye of a veterinary surgeon. 'I'll be shot if he's not groggy,' said the Baron. 'It would never do to go to the wars on a rickety

prad.' He dropped the rein, drew forth his good sword, Tickletoby, and as Dolphin, good, easy horse, stretched out his ewe neck to the herbage, struck off his head at a single blow." Returning years after from the crusades he saw a horse's skull lying on the beach, and, kicking it out of the way, one of the teeth stuck in his toe owing to the unmended condition of his brogans. Blood poisoning set in and the Baron slept with his fathers.

Lastly, "Mr. Dooley," the philosopher of the Archey Road takes a shy at our profession in his essay on "Dr. Hickenlooper and Goold Bonds, the cat presented to McKinley by J. Pierpont Morgan. As I remember it, the cat has a fit in the coal cellar and is rescued thence and restored to health by Dr. Hickenlooper; the gratitude of the President being evinced in the appointment of the doctor to a command in the army of occupation in Cuba.

Now, these opinions regarding our profession from the blessed St. Benedict to "Mr. Dooley" are not flattering and we shall do well to pause and ask ourselves why, through many generations, we have been a shaking of the head and a byword among the nations? Why do we not receive the same consideration that is accorded our sister profession of human medicine? (I have certainly shown you that wherever a writer has touched on our specialty that it has been contemptuously treated; George Eliot's pictures of English provincial life are true pictures and I must accept Mr. Horrock's with the rest of them.)

I'll tell you why! We don't organize and we too often know but our own profession. Why, out of all the members of our societies, do we have so few at our meetings? Too many men settle down in a country town, build up a Chinese wall of low prices around themselves and ask but to be let alone. I have known such men refuse consultation with reputable members of their profession when a consultation was requested by their clients. A few years of this kind of isolation works wonders; the instruments rust in the case, the pharmacy becomes, like that of

Shakespeare's apothecary, "a beggarly account of empty boxes, old cakes of roses, all thinly scattered round to make a show." The veterinarian dies from professional dry rot and the "hoss doctor" inhabits the shell, in order to give it a sufficient vitality to keep it from spoiling. Show me a man who attends our meetings regularly and I will show you a man who has the respect of his community, the respect of his profession, a man who is contented with his lot, a man who is doing his work in the world, who is influencing his time and who will, hence, influence all time. There has been too much talk of late years about commercializing the professions, about letting down the ethical bars, and the argument is advanced that a doctor is like a tradesman entitled to all he can get, regardless of means; in the words of Carlyle: "What is my share in the universal swine trough? Whatever I can get without being transported or sent to the hulks." "What is porcine bliss? Attainability of hog wash." Do you want your hog wash on these terms? There can be only one answer—You don't Gentlemen, you can't commercialize your profession, after the process has gone so far it ceases to be a profession. Hear what one of the great Englishmen of the nineteenth century, John Ruskin, has to say on the subject: "So of doctors. They like fees no doubt—ought to like them; yet if they are brave and well educated the entire object of their lives is not fees. They on the whole desire to cure the sick; and, if they are good doctors, and the choice were fairly put to them would rather cure their patient and lose their fee than kill him and get it. And so with all other brave and rightly trained men; their work is first, their fees second. But in every nation, as I said, there are a vast class who are ill-educated, cowardly and more or less stupid, and with these people, just as certainly, the fee is first and the work second, and this is no small distinction in a man; distinction between life and death in him, between heaven and hell for him." "If your work is first with you and your fee second, work is your master, and the lord of work who is God. But if your fee is first with you, and your

work second, fee is your master, and the lord of fee who is the devil; and not only the devil, but the lowest of devils—the least erected fiend that fell." One of the most beautiful northern myths relates that when the gods grew old they sought the goodess Iduna, and that she gave them of her store of apples, that they might, eating, renew their youth. So let us, worn by the heat of the busy day, seek the goddess Minerva, she of wisdom, and in the golden apple of some good old book find rest and succor by the way.

NOT A VETERINARIAN.—A well-known physician was invited out to the country for some shooting, but, although he tried several times, he could not hit a single rabbit.

"I'm very unlucky," he exclaimed; "I've killed nothing all day."

"Never mind," said his host; "write the rabbits one of your prescriptions!"—(*Life.*)

VALUE OF HORSES IN THE UNITED STATES.—With the steam railroad, the electric car, the bicycle and the automobile, each in its turn heralded as the forerunner of the horseless age, horse breeding is still the greatest branch of the live stock industry of the United States. The twenty-three million horses reported by the government statistician on January 1, 1908, had a value of $2,148,430,000, while cattle were appraised at $1,496,000,000, hogs at $339,000,000 and sheep at $211,736,000. Horses thus have a greater value, by more than $100,000,000, than all other classes of live stock combined. It is interesting to note that in numbers and in value they have made their greatest gains during the years of the development of the automobile. And the gain in value has been greater by far than the gain in numbers. In 1898 horses were appraised at $34.27 per head, while the average price in 1908 was 93.41, an increase of more than 150 per cent. in ten years. The increase in numbers during this period was something like six hundred thousand annually. Verily, when visions of the horseless age recur it is well to take down "Tama Jim" Wilson's year book and do a little figuring as to the probable date when the last horse will have gone to the boneyard.—(*New York Herald.*)

THE TREATMENT OF SUPPURATIVE CONDITIONS IN ANIMALS BY A SLIGHT MODIFICATION OF THE WRIGHT-DOUGLASS VACCINE METHOD.

By E. F. McCampbell and J. McI. Phillips, from the Bacteriological and Pathological Laboratories, Ohio State University.

During the last few years the Wright-Douglass method of bacterial vaccination has been used rather extensively in human medicine, but little use has been made of this procedure in veterinary practice.

It may be well to state in the beginning that there are certain substances in the blood serum which we designate as *opsonins* (Gr.—to prepare food for) and which are distinct and separate from toxins, antitoxins, bactericidal substances, etc., which are also found in some sera. The opsonins are constituents of the normal serum but may be markedly increased on actively immunizing the animal for vaccination.

There are several ways in which the body protects itself against bacterial invasion, but without doubt one of the principal means of defense is through the agency of the phagocytes and the opsonins. This is especially true in suppurative conditions.

The opsonins are substances in the blood serum which act upon the bacteria invading the body, sensitize them, so to speak, and render them susceptible to be ingested by the phagocytes (leucocytes). No leucocyte can take up a bacterium which has not been acted upon by the opsonin of the blood serum. This can be very easily shown by combining washed leucocytes and bacteria and as a result none are taken up by the leucocytes, but when serum (opsonin) is added the bacteria are very rapidly phagocytised. The opsonins are probably produced in the subcutaneous and muscular tissue and are very easily destroyed by heat (56° C.—30 minutes). The opsonins are specific sub-

stances, there being a different one for the various pathogenic bacteria which infect the particular animal.

In human practice it is highly advisable to determine the number of bacteria the phagocytes are taking up in a certain disease condition and compare this to the number taken up by the phagocytes of a normal individual to determine the opsonic index. For example, on applying this to veterinary practice if the leucocytes of a horse with a fistula take up 4 bacteria of the same species as those causing the infection and the leucocytes of a normal horse take up 8 bacteria of the same kind, then the opsonic index of the horse with the fistula is .5. Simon has a method which is said by some to be more accurate than the opsonic index, namely, determining the percentage of bacteria taken up by a definite number of phagocytes (percentage index). By vaccination the opsonins are increased and the leucocytes take up more bacteria. If all the bacteria are removed, a cure is effected.

In order to determine the opsonic index or the percentage index it is necessary to employ washed leucocytes in .85 per cent. sodium chloride solution, blood serum, and a bacterial emulsion. These are combined in a capillary pipette, incubated, smeared on slides, stained and examined. The technique is rather burdensome unless a laboratory is available and we have done away with the determination of the opsonic index in our work on animals, and also simplified the technique of vaccine preparation. We have applied this method both in human and veterinary work with distinct success in especially suppurative conditions.

Preparation of Vaccine-Autogenic.

Clean the field of infection thoroughly with weak bichloride of mercury, alcohol and ether. Express the first pus from the inflammatory tract in order to exclude accidental saprophytic bacteria, and with a sterile platinum needle make a bacterial culture on several agar-agar slope tubes from the deep pus. These cultures presumably contain all the bacteria concerned in the in-

fection. The agar-agar tubes can be easily secured from any proprietary medicine firm and kept on hand ready for use. After the tubes are inoculated they are incubated at 37° C. (98.6° F.) for 24 hours in the incubator. If no regular incubator is at hand the tubes may be incubated very nicely with a small amount of inconvenience if carried in the operator's axilla, being held in position by adhesive tape. After having grown 24 hours the cultures are washed off carefully with sterile .85 per cent. sodium chloride solution, shaken to destroy clumps of bacteria and heated in a water bath at 60° C. (140° F.) for one hour to attenuate the bacteria. We have also used unheated bacteria, but not with as decided success as when they are heated as mentioned above. The bacterial emulsion thus heated is now approximately standardized by dilution with .85 per cent. NaCl to the opacity of the precipitate in the fluid in a test tube containing 1 per cent. sulphuric acid in distilled water and 5 per cent. barium chloride in distilled water (precipitate is barium sulphate). One tube of this kind can be prepared, corked, and kept for all time. The number of the bacteria in such an emulsion vary, but there are approximately 5,000,000 staphylococci per cubic centimetre. The vaccine having been prepared, the next procedure is the inoculation or vaccination of the infected animal. This must be done with a sterile syringe to avoid abscess.

It is essential in this connection to take the size of the animal into consideration and to give very minute doses of the bacterial emulsion, and to not repeat the injection too often.

For example, in a case of a horse with poll evil and fistula of the withers we injected .5 ccm. of emulsion followed every five or six days by slightly increasing doses, up to 1cc.

We have observed this procedure to be of excellent service in fistula. Of the poll and withers and also in suppurative conditions of the hoof, etc. Recovery is extremely rapid. In one case, a large fistula involving the poll and withers, not amenable to surgical treatment, was cured by six injections; another in

five injections, etc. The method is also of use in pyogenic infection of smaller animals.

The principle involved in the whole procedure is the stimulation of the leucocytes to take up the infecting bacteria and this is accomplished by increasing the opsonic substances in the blood by vaccination.

The following cases are illustrative of what can be accomplished by a slight modification of the Wright-Douglass method of vaccination:

Case 1: Brown mare, 7 years old. Infection and suppuration of about one year's duration. Treated by courtesy of Dr. D. H. Udall, Ohio State University Veterinary Hospital. The infection started as a poll-evil in which the pus burrowed backward, passing down the planes of fascia of right side of neck to the axilla. The entire subscapular region was apparently involved with fistulous openings on the neck, withers, and in the axillary space. Numerous fistulous openings were noted along the side of the neck. All the involved region was oedematous and indurated. The case was considered inoperable. This mare received on first injection .5 ccm. of an autogenic vaccine and the dose repeated at intervals of five to six days for a month. The dose was then increased to 1.00 ccm. and two more injections made at six-day intervals. After first and second injections the lesions began to heal and in two months the animal was perfectly well. When observed in one year afterward the animal was still well and healthy.

Case 2: Sorrel mare. Treated by courtesy of Dr. D. S. White, Ohio State University Veterinary Hospital. Fistulous withers, both sides, opened and treated by irrigations of mercury bichloride and no radical operation was performed. Prognosis was unfavorable and owner disposed of animal to anatomical department. Cultures were made and an autogenic vaccine prepared. The animal received on first injection .5 ccm. vaccine and this was repeated four times at six-day intervals. After

first injection wound began to heal and general condition improved and at the end of one month the animal was practically well.

Cases 3-4-5: A litter of eight six weeks' old puppies were exposed to distemper. Ten days later they became very sick. Two died within twenty-four hours. The others soon developed swellings varying in size from that of a small cherry to that of a hickory nut which were apparently situated in the lymph nodes of the neck, axilla and groin. Aspiration of one of these swellings by means of a sterile hyperdermic syringe produced some pus. A culture was made on an agar slope tube from this pus. A very abundant staphylococcus bacterial growth was obtained. Three of the five remaining puppies were given an inoculation of .1—.15 ccm. of this vaccine. One of these three was apparently the most severely infected of the lot. In twenty-four hours, the enlarged lymph nodes of all of these puppies were reduced to half their size. In forty-eight hours the swellings had all disappeared excepting one cervical gland in the most severely infected puppy, which was still the size of a cherry. Three days after the treatment no lymphatic enlargement could be found in any of these puppies. The two controls were very sick, the next day after inoculation had been made in the other puppies. Later we lanced seven large abscesses in one of the controls and four in the other. These puppies stopped growing, their coats became rough, they emaciated rapidly, both developed very extreme anemia, one died three days later. The contrast in the condition of the treated and untreated puppies was remarkable; the treated ones being sleek, fat and thrifty, and the untreated absolutely ceased to grow.

Preparation of Vaccine—Autogenic—Crude Method.

We then attempted to devise some means which would simplify treatment by means of opsonic vaccines still further, so that the veterinarian with no equipment for bacteriological work might be able to use it in certain selected cases. After some

experiments the following technique was adopted: Curettings and pus from the diseased parts are placed in a mortar, ground as fine as possible with a pestle, diluted with about five times their volume of an .85 per cent. salt solution, and the emulsion thus obtained is strained through an ordinary tea strainer to get rid of the coarser particles. It is then heated three to four hours at 55° C. (131° F.). It is then filtered through the coarsest grade of sterile filter paper, and immediately injected into the patient. All utensils used should be boiled in water, so that other infectious organisms will not be introduced with the vaccine.

The construction of an apparatus for heating the vaccine is very simple. A triangular brass plate about 12 inches long, and 6 inches wide, one-inch thick, is placed upon a tripod, and a Bunsen burner with a flame turned low, is placed under its apex. On the base of the triangle put an ordinary tin cup in which a small wide-mouthed sterile bottle is held in place by a wire support so that it is not in contact with the bottom of the cup. Fill the cup with water until it is one-inch from the top of the bottle. Put some boiled water in the bottle and close with a perforated cork through which a thermometer has been passed, so that the bulb of the thermometer is immersed in the fluid in the bottle.

By adjusting the flame and moving the cup to and from the apex of the triangle a point is easily found at which the contents of the bottle can be held at a constant temperature of 55° C. (131° F.), if the temperature of the room is anything like constant. The bottle is now emptied and the fluid to be heated is placed therein.

The dose of the filtrate for a horse is from 5 cubic centimetres to 10 cubic centimetre, beginning with the smaller amount. We recommend this large dose because the material must be diluted or else it is too viscid to filter and many of the organisms are retained with viscid material on the filter. A marked diminution in the discharge and a rapid improvement in the animal and the local lesion is noted following the injection.

While the results of this method of treatment seem to be brilliant at times, we would much prefer the first method in all cases, because by the present method so much useless extraneous matter and dead tissue is introduced with the dead micro-organisms, and we cannot but feel that there is danger of introducing tetanus and other infections, especially in cases of foot canker. Considering the lack of accuracy in this method, we were surprised at the seemingly good results obtained. The following cases are recorded as illustrative of this.

Every practising veterinarian knows the obstinate character and often almost hopeless prognosis of foot canker.

Case 1: Black stallion, treated by courtesy of Dr. D. H. Udall. When admitted to the Ohio State University Veterinary Hospital, the right hind fetlock was much enlarged with three points of suppuration on it, one just behind, one in front, and the other to the right of and on a level with the fetlock joint. The skin behind the joint was thick, scabby and warty. The animal was operated on for canker under chloroform anaesthesia. The wall of the inner quarter and the region of the inner angle of the sole was removed, and a great proliferation of the villi found. The pododerm was curetted from the bone, and the cherry red cautery applied. The wound did not heal properly, and was soon covered with unhealthy granulations and a small quantity of brownish foul pus. It would apparently improve one day and be worse the next, the ulcer gradually becoming more and more extensive. This condition persisted in spite of any and all treatment that was used. Fourteen weeks after the operation, the following note appears in the case history: "Wound is no better. Hoof loosening at coronary band. Wound covered with extensive unhealthy granulations, and greenish and brownish foul pus." At this time the wound was curetted and the vaccine prepared from the pus and the granulations. This material was heated at 50° C. (122° F.) for one hour, filtered and 5 cubic centimetres of it injected. The injection was followed by extensive inflammation at the site, and

a severe general febrile reaction. The vaccine had been insufficiently heated. A rather large abscess formed at the site of inoculation. In spite of this the wound improved steadily for two weeks, when the granulations again became unhealthy. Another injection of 5 cubic centimetres was given, this time the material was heated to 55° C. (131° F.) for four hours. It was followed by a slight febrile reaction, and a very marked improvement in the condition of the wound. Seven days later another injection was made of material prepared in the same way, but heated three hours at 55° C. (131° F.). Six weeks after beginning this treatment the animal was sent home with the wound practically healed. An ulcer remaining after the discharge of the pus from the abscess at the seat of the first inoculation, was still present, and persisted for several weeks when it gradually healed. The inoculations are best made in the loose tissues of the chest between the forelegs. In case suppuration should occur on account of the defective technique, it is easy to drain an abscess at the point. The thickening above the hoof and the papillomatous dermatitis persisted for several months when they, too, disappeared. The final result was a somewhat thickened fetlock joint, and quite a little contraction with scar tissue which replaced the ulcer in the foot.

Case 2: Bay mare seen by courtesy of Dr. Harry Brown, Columbus, Ohio, who carried on the treatment under our direction. Canker of all four feet of two years' duration was present. Each foot was in about the same condition. The frog was almost gone and an ulcer, almost big enough to conceal half an ordinary sized apple, took its place. From these ulcers there was a constant discharge of foul brownish-green pus. This animal had been treated almost constantly by several different veterinarians, but it had continued to gradually grow worse. After the first injection of 5 cubic centimetres of material prepared as in the preceding case and heated to 55° C. (131° F.) for four hours, the granulations assumed a healthy appearance, and after two other injections at intervals of five days the wounds

were so far healed that no more material could be obtained. Simply by using these injections and washing the feet occasionally with the hose the ulcers were completely healed in about five weeks. The animal was then shod and put to work. Later some contraction of the foot required further treatment.

Case 3: Bay horse, 13 years old; the animal had a fistula of the withers which had been discharging for about three weeks. This was not a very severe case nor was there much swelling or induration about the shoulder, but the opening discharged very freely. The material for the first injection was obtained by aspirating the pus from the fistula through a small metal tube attached to a sterile syringe. This was diluted with 0.85 per cent. salt solution, and prepared as we have already described. Five cubic centimetres was given at the first dose, there was very little local reaction, and practically no general reaction. After five days the discharge had almost ceased. Material for the second injection was obtained by enlarging slightly the fistulous opening and scraping out tissue and pus with the curette. An injection of the material was again made. Two weeks later the fistulous opening had closed. The horse was not seen until one year later, when all evidence of trouble had disappeared. The material for these injections was heated for three hours at 55° C. (131° F.).

In the police department of the city of New York there are seven hundred and eighty horses, all geldings, of a certain height and weight varying not more than half an inch from 16 hands and weighing from 1,050 to 1,150 pounds. These animals have passed through a rigid mental and physical examination as to soundness and adaptability. Besides complying with the exacting conditions of specifications and of standing a searching examination and test, they had to go through the training school before being admitted to the service. The color line is sharply drawn, for white horses, as well as black ones and yellow ones, are invariably rejected. Bay, and solid bay at that, is the only color that can pass muster and it is useless for females to apply.

STRANGLES.

By J. Martin Rice, V. S., Bobcaygeon, Ontario, Canada.

Read at the Annual Meeting of the Ontario Veterinary Association, December 23, 1908.

Strangles, commonly called by the laity "distemper," is an infective equine disease generally affecting young horses, but may affect horses at any age. The infective agent is a streptococcus, which can be found by coverglass preparations, stained with gentian-violet, methyline blue or by Gram's method. The disease is rarely fatal in the ordinary form.

The streptococcus of strangles is no doubt the more common cause of abscess in the horse, than any other organism, and it is generally understood, both clinically and bacteriologically, that it is a common cause of acute catarrh and other respiratory diseases, with or without pus formation.

The disease presents itself in many forms, affecting the various lymphatic tracts and glands.

When an outbreak commences in the pharyngeal region, it is common for all susceptible animals in the same stable to become affected in a similar location. Certain outbreaks seem to affect some particular part, although in some it may vary a little.

Symptoms in pharyngeal abscess—dyspnea is present owing to the narrowing of the air passage, but will depend upon the size and development of the abscess. The respiration as a rule is roaring.

Sometimes a slight attack develops into a severe one with great rapidity.

In the sub-parotid form, as a rule one side alone is affected, if both sides, then the two abscesses may communicate. The abscess in this situation matures very slowly and an attempt to liberate the pus which lies deep, very often fails, even after several days have elapsed since the swelling commenced.

The danger of wounding the blood-vessels is great and if surgical means are adopted, either Hilton's or Viborg's methods should be preferred, which are similar. Hilton's method is, to incise the skin over the most dependent part and then pass a blunt instrument, if possible, through into the abscess cavity. A pair of closed dressing forceps are now passed into the abscess cavity, opened wide and withdrawn; in this way the opening was dilated. Viberg, after incising the skin, used the finger to force an opening. Very often pus was not found, but was followed by a copious discharge in 24 or 48 hours.

Some incise the skin over the most prominent part, which lessens the resistance and is not a bad plan, the pus flowing out in about 48 hours.

Sometimes the pus did not break out where the skin was incised, but at a higher or lower point.

It is said that the local destruction of tissue for the outlet of pus is not due altogether to pressure from within, but to the action of the ferment or ferments, which are produced by the pus bacteria and which possess the power of dissolving albumen.

Fistula of Stenson's duct sometimes occurs, due to the breaking down of the walls of the ducts by being included in the area of suppuration.

Sometimes these abscesses break into the pharynx and the pus is swallowed or inhaled into the lungs and Pyemic Pneumonia or pulmonary abscesses may result, but these can also be produced by metastasis, in which case they are generally met with in both lungs in the miliary form or one large abscess may exist. These complications may be the result of pyemia. If these lesions are very large, death is the result, but on the other hand if small, recovery may take place with persistent treatment. Sometimes an animal has an ordinary attack of strangles in the submaxillary space, it breaks, discharges and heals. After two or three weeks, sometimes longer, the animal is noticed to have colicky pains; the feces are slimy and hard, appetite poor, very dull and the temperature on the increase.

This is a sign of internal (mesenteric) abscesses. Again, the animal may breathe heavily, pressure upon the sides or turning around sharp produces pain and the temperature and pulse will be found to be increasing; this is a sign of Purulent Pleuritis and as a rule is fatal.

There are several other positions where the abscess sometimes occurs, such as the prepectoral form which as a rule is situated very deep.

The encephalic abscess will cause the patient to walk one-sided, due to pressure upon the brain.

Sometimes the abscess occurs on the scrotum, which gives it the appearance, at first sight, of scrotal hernia.

Cutaneous strangles occur about the face, eyelids, etc., in multiple abscesses, which gives the muzzle a large appearance; in fact the abscess may occur on any part of the body.

The form of strangles for which the purpose of this paper is intended, is the internal form, which has occupied my attention considerably.

The following cases I will describe:

Case I.—Filly, aged 1 year, abscess in pharyngeal and sub-parotid regions, temperature 105 F., appetite appeared good but deglutition was performed with great difficulty, breathing stertorous.

History.—Filly had abscess form in submaxillary space, it had burst and healed about two weeks previous. Throat again swelled but this time higher up.

Diagnosis.—Strangles affecting the pharyngeal and sub-parotid regions and probably the gutteral pouches; the internal organs were also affected indicated by diffculty in turning around.

Prognosis.—Unfavorable.

Treatment.—The usual treatment was given. The animal died three days later.

Postmortem.—Abscess of parotid and pharyngeal regions and gutteral pouches. Pharyngeal abscess had broken and en-

tered the trachea and lungs. When the trachea was severed the pus flowed out.

Purulent pleuritis was also present and several pints of pus were found in the pleural cavity.

Pericarditis and pneumonia also existed.

There was an abscess upon the stomach holding about half a pint of creamy pus, also innumerable small abscesses along the lymphatics of the bowels. The animal a few hours before death appeared to be very much better and ate steamed oats, hay and drank water.

Case II.—Mare, aged 8 years, weight about 1,500 pounds, (owner same as No. I), suffered from strangles. The abscess formed in the submaxillary space, burst and healed. The temperature ranged between 101 and 102 F. and appeared to be getting along very well, when suddenly the temperature rose to 105 F.

It was at this time the owner asked me to call and see the animal.

Symptoms.—On my arrival the following symptoms were observed. Heart beats 125 per minute; appetite in abeyance; labored respiration; slight colicky pains and bowels costive; temperature 105.3 F.

Diagnosis.—Pyemic Pneumonia probably with mesenteric abscesses.

Treatment.—Raw Linseed Oil, Oii, Rectal injections to stimulate bowels. The oil was repeated but no movement of the bowels resulted. Nux Vomica and other stimulants and diuretics were given. Patient died 2½ days later.

The rope was being put in the mouth for the purpose of raising the head for drenching when she pulled back and dropped dead.

During the 2½ days the pulse ranged between 112 and 135 beats per minute; the temperature dropped to 104 F. just before death, and she also drank milk and appeared much better.

Postmortem.—Solidification of a portion of both lungs with small abscesses. Purulent Peritonitis and multiple mesenteric abscesses, large and small, containing creamy pus.

There was rupture of the stomach, probably due to the fall at the time of death.

Kidneys were very pale.

The two animals both died the same night and only six hours apart, and the postmortems were both performed at the same time and after they were finished the owner said he had seven more suffering from the same disease and wanted me to examine them.

Examination.—They all had the submaxillary abscess and which were nearly healed; some had fresh abscesses forming. The temperatures ranged between 102½ and 104 F. Their appetites were diminished. The owner had been giving them a heroin mixture which he got made up at the drug store, but they did not improve by it.

Treatment.—Sodium Hyposulphite ℥iv, Pot. Nit. ℥ss three times per day and Calcium Sulphide ℥iv twice per day for 2 year olds. Two-thirds (⅔) these doses for yearlings.

Their throats were blistered with Biniodide of Mercury ointment (1 to 4) and the abscesses were thoroughly disinfected with Creolin solution (1 in 10) containing 2% of Formalin.

There were three more fresh cases in the stable. They all made a good recovery.

Case III.—Colt, 2 years old, suffering from colicky pains, constipated, appetite poor. Submaxillary abscess had formed, burst and healed.

The above is the history of the case as given by the owner.

I informed the owner of the possibility of internal abscesses and that it would very likely prove fatal.

Treatment.—Physic drench, Sodium Hyposulphite ℥ii, Pot. Nit.℥iii, three times per day. (The two last named medicines were given in bulk.)

The owner came back in two weeks' time and asked me to visit the colt because he was not doing very well.

He remarked that the physic acted just right, but was constipated again.

Upon inquiring I learned that he had only given half the medicine in the two weeks, which, had it been given according to directions, would only have lasted four days.

EXAMINATION.—Eyes very pale, condition poor, appetite in abeyance. Rectal examination revealed constriction, due to the pressure of a large abscess.

The colt had not passed dung for two days and the last that was passed had an odor of decaying tissue.

PROGNOSIS.—Unfavorable.

TREATMENT AFTER VISIT.—Purging drench composed of a small dose of aloes and oil was given, also Nux Vomica and rectal injections but they failed to move the bowels. Pilocarpine and Eserine were given which also failed.

Arecoline was tried and this failed also. The colt died two days later.

POSTMORTEM.—An abscess about the size of a large football was found situated in the right pelvic and posterior abdominal region and about fifty mesenteric abscesses varying in size from that of a pea to an egg. The internal organs had a very fetid odor.

Case IV.—Colt, 2 month old, had abscess form in submaxillary space which was lanced three weeks previous to my visit.

For the last three days the bowels had not moved, but this day the colt seemed much better although it had to be helped upon its feet, which they had been doing for over a week and when up walked with its head to one side. (The above are the words quoted by the owner.)

I informed the owner, I did not think it was much use treating it, because it would probably not live long, but he insisted

upon me going out to see it. Upon my arrival at the farm I was informed that the colt had been dead about an hour. Its legs were stretched out as though it had been struggling to get upon its feet.

POSTMORTEM.—Mucous membrane very pale, pus discharging from right ear, forehead was bulged out. Upon incising the forehead a large quantity of pus escaped. The cranial covering was removed and a large quantity of thin watery pus was found in the (cranial) cavity.

The gutteral pouches contained a quantity of caseated pus about the size of an egg in each pouch. The posterior portion of bowels was empty; the anterior portion contained feces and linseed oil (the oil was given the night previous). All along the mesenteric lymphatics there were an enormous number of small abscesses about the size of large beans, which contained creamy pus. There was a small rupture at the termination of the pulmonary vein.

REMARKS.—Probably the rupture of the pulmonary vein was caused by the struggling to gain its feet.

Walking to one side was due to pressure upon the brain.

Paleness of the mucous membranes was due to the inferior state of the blood, produced by streptococcic infection.

SUMMARY.—The majority of the cases of mesenteric abscesses are due, no doubt, to the germs being carried by the bloodstream or lymphatic system, to parts where they become lodged in the capillaries, etc. (secondary infection).

If the abscess is allowed to mature well before opening and then thoroughly disinfected with strong creolin solution it would happen less often. In cases where surgical means must be adopted in the early stage, such as when the animal is strangling or cannot drink, the above mentioned methods should be adopted and the opening well cauterized which will prevent the germs from so readily passing into the circulation.

The constipation is no doubt in many cases due to the toxins diminishing peristalsis and in other cases to pressure of the abscesses upon the nerves.

Regarding the action of Sodium Hyposulphite and Calcium Sulphide which in the writer's practice has proved very valuable and may perhaps act in many ways.—First by either destroying or inhibiting the growth of bacteria; second by increasing the phagocytc power of the leucocytes; third by increasing the bacteriolytic power of the blood plasma or all three actions combined.

The Sulphides must be given so as to produce saturation.

To Graft Arteries and Veins.—The experiments in the replacement of arteries and veins in animals, made in his laboratory by Dr. Carrel, a French surgeon, bid fair to result in knowledge that may save countless human lives. Dr. Carrel has successfully cut out diseased or lacerated sections of arteries and replaced them with healthy tissue. In cases where this could not be done he has made the connection with a piece of vein, and in some instances he has caused an artery to discharge directly into a vein, finding that the circulation will finally adapt itself to this somewhat radical change in direction. He has also succeeded in transplanting entire organs, like the kidneys, from one animal to another. The skill and knowledge in this kind of animal grafting are not, it would seem, yet sufficient to warrant making the attempt on a human being; but the question is merely one of time, and we may expect that at some time in the future the victim of an accident whose arteries have been crushed or lacerated will not be left to perish of gangrene, but will have sections of these vessels replaced with healthy parts from some animal. This will put a crucial question to the anti-vivisectionists.

If a man's life can be saved only by killing an animal, shall this be done? A good many animals have been experimented upon up to the present stage of this method. If the method succeeds thousands of human lives will be saved; is the game worth the candle? The surgeon, at any rate, thinks that there is only one possible answer to this question.—(*Arthur E. Bostwick in New York Herald.*)

OPSONIC THERAPY.

By Dr. R. A. Archibald, Oakland, Cal.

Presented to the 45th Annual Meeting of the American Veterinary Medical Association at Philadelphia, 1908.

In accepting the honor of addressing you on the subject matter of "Opsonic Therapy" I desire to apologize for being unable to submit for your consideration anything of an original character. In fact my only excuse in the premises is a desire to call your attention to a few accepted facts in regard to this new method of treating infectious diseases, with a view of stimulating a discussion that may be the means of inciting some among you to interest themselves sufficiently to try this treatment.

Some four years ago Sir Almoth E. Wright gave to the scientific world his theory that the power to resist the invasion or the power to overcome infectious diseases, was due to the presence of certain agents which he claimed and are now known to exist in the blood serum whose function it is to unite with bacteria and prepare them for the leucocytes to attack and destroy. And upon the quantity of these agents depends the amount of resistance the blood may have against an invading organism. To these agents Wright has given the name of "Opsonins." The word opsonic is derived from a Greek word which we are unable to pronounce but which means "I convert into palatable pabulum."

One of Wright's discoveries was that until invading bacteria are acted upon by the opsonic agents the leucocytes refuse to pay any attention to them, and a second was a technical method by which we are enabled to measure or estimate the quantity of opsonins in the serum of a given blood. And the result of such measurement is expressed and known as the opsonic index. To be more specific, the index represents the rel-

ative amount of opsonins in the serum of a specimen of blood to be tested as compared with the amount in normal blood, or to be more accurate the average number of bacteria ingested under the influence of normal serum.

To illustrate the point, we will assume that we have determined the opsonic index of a tuberculous patient, and found same to be .5, we mean that the blood serum of said patient contains but one-half the normal quantity of opsonic agents which are essential to successfully combat the infection of the tubercle bacillus.

The index is obtained as follows: If the index of normal blood serum is arbitrarily represented as 1, and it is found that leucocytes under its influence each engulf 30 bacteria, the experiment indicates that the tested serum is only one-half normal, hence the opsonic index of the patient from which the tested blood serum was obtained would be .5. If only 10 bacteria were engulfed by each leucocyte, the index would be .3 or one-third normal. Wright's theory of course embodies the principle that if the index is low the economy has not sufficient power to oppose the invading bacteria, but if high, the bacteria fall prey to the leucocytes and the disease aborts under the influence of their destructive activity; consequently, when an infection occurs the relative resistance or relative opsonic power of the blood is lower than normal.

Having determined clinically or bacteriologically that a low opsonic index exists in a certain patient, the main object of a veterinarian or physician is to artifically supply the blood serum of such patient with opsonins and thus facilitate the destructive activity of the leucocytes. His aim is to produce an agent that can be safely introduced into the living body with a view of increasing the opsonic resisting power and thus place the invading microbe at the mercy of the leucocyte. In other words, raise the patient's opsonic index. Wright has produced the solution of this problem by demonstrating the use and efficacy of bacterial vaccines.

The theory of opsonic therapy may be briefly summarized as follows:

1. A pure culture, the causative micro-organism is isolated.

2. Clinical or bacteriological estimation is made of the opsonic power of the patient's blood serum to this micro-organism.

3. A vaccine is prepared and standarized from this micro-organism.

4. The patient is inoculated with this vaccine, with varying doses at indicated intervals, determined by clinical symptoms or bacteriological estimations of the opsonic power of the patient's blood serum.

The principle of bacterial vaccination may be better fixed in our minds by an example or two.

If we have to treat a patient with furunculosis due to an infection by the staphylococcus pyogenes, we will grow the staphylococcus, kill it and inoculate our patient with a proper dose of this dead culture. If our patient has tuberculous glands, we will inoculate him with new tuberculin (bacilli emulsion) which consists of devitalized tubercle bacilli. The principle holds similarly for all bacteria that we can cultivate.

In the use of vaccines the quantity inoculated is of great importance. If too large a dose is administered, there is first a decided lowering of the opsonic resisting power, or a marked negative phase, which, of course, as soon as nature has come to the rescue, is followed by a rise in the opsonic power or positive phase. It is better to start with a minimum dose and avoid as far as possible a marked negative phase or if the production of a negative phase is unavoidable the production of a negative phase unaccompanied by slight if any constitutional disturbances.

We are taught by Wright and his co-workers, that the positive phase achieved by vaccination is only a transient rise and that the opsonic resistance if permitted will decline in a few days. Consequently it should be the aim to raise and maintain the opsonic index above normal by the judicious use of vaccines.

The question regarding the efficacy of stock vaccines should receive some consideration, at this time. Those who have experimented along these lines, have come to the conclusion that with the exception of T. B. vaccines, stock vaccines have doubtful value. It is true, however, that some benefit has been brought about in the initial treatment of infectious diseases by the use of stock vaccines, but after reaching a certain point, they lose their virtue. It then becomes necessary to resort to the use of an autogenous vaccine or a vaccine produced from the invading organism. As far as T. B. vaccine is concerned, reports of investigators seem to point to the fact that it is practical and efficient providing that in the vaccine treatment of a tuberculous patient, we take into consideration the fact that there is in most cases of tuberculosis a mixed infection. In such cases, it is necessary to determine, if there is a mixed infection, and if so, what is the nature of the invading organism, other than the tubercle bacillus. Usually the mixed infection is due to the presence of some staphylococcus or streptococcus or both. In the vaccine treatment therefore, of a case of tuberculosis, it is not only necessary to use a tuberculous vaccine but also to use a staphylococcus vaccine, or a streptococcus vaccine, as the individual case requires. This rule holds good in the vaccine treatment of all infectious diseases.

It is assumed that where an infection occurs the relative resistance or relative opsonic power or index is lower than normal. The lowered opsonic index is thought to be due to the absence, partial or complete, of autoinoculation. By autoinoculation is meant the escape of bacteria or their products from the focus of the disease into adjacent lymph or blood streams. The result of such an escape is to increase the opsonins or bacteriotropic substances is the blood serum by stimulation of the machinery of immunization and often to cure or relieve the infective process. The absence therefore, of autoinoculation determines the persistence of the infection and indicates the necessity of interference with bacterial vaccines by means of inoculation. In the

great class of infectious diseases, where autoinoçulation is slight or absent, there are included many tuberculous affections, such as tubercular disease of glands, bones and early or moderately early pulmonary tuberculosis. We find here also boils, acne, sycosis, felons, gonorrhoea, and many cases of sepsis and persistent sinuses, etc. It is this class of diseases where the infection is localized and where in consequence autoinoculation is withheld that inoculations with bacterial vaccines has been most successful.

As far as pure septicemias are concerned, such as puerperal septicemia, ulcerative endocarditis, etc., these have generally lowered opsonic power, but in diseases where auto-inoculation is a characteristic feature, such as pulmonary tuberculosis, the opsonic power or resistance fluctuates from low to high, and from high to low.

As to how far we may apply vaccines to the treatment of infections generally, is a question for the future. It is necessary for us to see clearly that opsonins are only one class of a series of antibodies protecting the body from infection, further invasion or aiding in overcoming an active infectious process. If we recognize this fact we shall not expect to find a sure cure by the use of this agent alone.

Despite some opposition to the therapeutic application, the discovery of opsonins must be regarded as a significant forward step in the study of immunity and pathology in general.

Personally I have devoted considerable time to the practical consideration and study of the subject during the past year. Being connected with a municipal laboratory, occupying a chair of bacteriology in a medical college, and having privileges at our County Infirmary, opportunity for working along the lines of the treatment of human infectious diseases has been very favorable. Having had some experience with the vaccine treatment of tuberculosis, gonorrhoea in its various forms, colon infection of the kidneys and other organs, furunculosis, sycosis, pneumonia, a few cases of sepsis and persistent sinuses, etc.,

I am in a position to state that this line of treatment as far as infectious diseases are concerned, is beyond question the most rational and most efficient, that has yet been brought before the notice of the scientfic world. I have frequently seen cases that had been under treatment for years by the older methods without success, succumb to a few injections of a proper vaccine. In fact some results obtained have seemed to border on the miraculous and would sound incredible if detailed at this time. Of course there is great room for improvement in the technique of the treatment but so many investigators are working on the problem all over the scientific world that it is only a question of a short time until the method is perfected.

THE ARISTOCRACY OF PORK.—When Theodore Parker first visited Cincinnati, at that time the recognized leader among western cities, he said that he had made a great discovery—namely, that while the aristocracy of Cincinnati was unquestionably founded on pork it made great difference whether a man killed pigs for himself or whether his father had killed them. The one was held plebeian, the other patrician. It was the difference, Parker said, between the stick 'ems and the stuck 'ems, and his own sympathies, he confessed, were with the present tense.—(*T. W. Higginson in Atlantic Monthly.*)

COLLECTING COWBOY SONGS.—John A. Lomax, associate professor of English in the State Agricultural and Mechanical College at College Station, is preparing a compilation of native ballads and songs of the West, particularly those known as "Cowboy Songs." Mr. Lamox says these songs have for the most part never been in print, but, like the Masonic ritual, are handed down from generation to generation by word of mouth. He has collected nearly 100 and is certain there are many others, which he hopes to secure. These songs deal mostly with the range and with heroes of tragedy and desperadoes like Jesse James and Sam Bass. They also include ballads of buffalo hunters, freighters and rangers. Mr. Lomax does not draw the line, and is as anxious to secure those that are crude and even vulgar as the printable sort like that one familiar in all cow camps that begins: "Bury me not on the Lone Prairie-e."—(*San Antonio Express.*)

OUR PERSONAL RESPONSIBILITY TO THE PROFESSION.

By Dr. Charles G. Lamb, Denver, Colo.

Presented to the 45th Annual Meeting of the American Veterinary Medical Association, Philadelphia, 1908.

When asked by our president to prepare something for this meeting upon a subject of my own choosing, I was led to choose this subject because I fully believe that many of us especially the younger graduates do not sufficiently consider and appreciate what a great personal responsibility to the profession rests upon each member of it.

I am one of the younger members of this association, not in point of years, but in length of membership; not that I have not been eligible, but because I did not sufficiently realize what an honor and a privilege it was to be a member; but since I have become a member I have attended every meeting and it will be some obstacle which is beyond my power to remove which will prevent my attendance upon all future meetings.

My personal experience is, and I presume it is the experience of every other member, that these meetings are an inspiration to all who attend. The personal contact with and the personal conversation with our brother practitioners from various portions of the country act as an inspiration; the reading of papers upon professional subjects and the discussions which follow are an inspiration, and the veterinarian returns to his home and patients inspired to become a better veterinarian, a better man and a better citizen.

One fact which is especially apparent to those of us who are older in years and which is emphasized by our attendance upon these meetings is the wonderful advance made by the profession during the past few years and which is being made every year.

I use the word advancement advisedly. Some have used the word elevated, and say "how the profession has been elevated."

I object to this term as, in my opinion, the profession always has been and always will be upon such an elevated plane that it is beyond the power of us or any one else to still further elevate it. When people say that the profession is being elevated, they mean that an increasing number of professors or numbers of the profession are climbing up nearer the level of the already elevated profession.

I say we marvel at the advancement of the profession; we listen to the reading of highly scientific papers by eminent investigators; we read the splendidly written books treating upon professional subjects; we follow as closely as we may the investigations of eminent pathologists and regard almost with awe the results that have been attained by these scientists in the realms of veterinary science.

Now a large majority of the members of the association is composed of men actively engaged in practice, engaged in the very laudable endeavor to keep the wolf at such a distance from their door that his howls may not disturb their well earned slumbers. These men might be inclined to say: "Yes, the profession has made wonderful advancement during the past two years, but I have not been able to do much toward it. I have been in private practice and have not had the time, perhaps not the ability to do much." Such an one might feel disheartened at the advancement of his profession in which he had apparently no part, if he looked upon the advancement from one and only one view point. I would remind such an one that great as has been the advancement from a purely scientific point of view, this advancement does not compare with the advancement from the point of view of the change in public opinion. We all realize what a change has taken place in public opinion regarding our profession.

It is not necessary for me to refer to the old time "hoss doctor" with his cure-alls for imaginary ills of the animal kingdom, nor his reputation in financial or social circles, and compare him and his standing with that of the veterinary surgeon of

to-day. We realize all this fully. But what is the cause of this change? Is it because educated, scientific veterinarians have written learnedly upon various subjects or have made wonderful discoveries in the realms of pathology? Not necessarily. These things could not well change public opinion of our profession because the public generally do not read these works or keep in touch with discoveries in veterinary pathology. These are for the professional man and not the public. So while we gladly and heartily accord them the honor and praise they so richly deserve, we must look elsewhere for the cause of the change in public opinion.

The public is willing to accord to the veterinarian and the veterinary profession any position which they demonstrate they are entitled to occupy; but before advancing them it must be positively demonstrated that they possess a thorough knowledge of their subject; that the knowledge is applied in a scientific and careful manner and that the public may be assured of their absolute honesty and trustworthiness. When these things are assured, the veterinarian will assume in the opinion of the public the position accorded any person in any profession possessing these qualifications.

Now in the place of the "hoss doctor," in most cases illiterate and in too many cases dissolute and unreliable, have appeared well educated gentlemen who, by their uprightness, fair dealing and unimpeachable character, have convinced the public that the profession deserved and must obtain a better position in the public mind. The public has recognized the justness of the position and has advanced them to a position far superior to that occupied a decade ago and will continue to advance them just as fast as it is demonstrated they are entitled to it.

In this advancement every member of the profession has participated who has been a gentleman in the broadest acceptance of the term. The present reputation is and the future reputation will continue to be entirely in the hands of the individual members, equally as much in the hands of the humblest as the greatest.

We all know men, and some are within sound of my voice at this moment who have done much to advance the profession along scientific lines; who have conducted investigations and written books of great value to the profession; whose personal life and character have been of even more value to the profssion than their writings.

In the future advancement of the profession, a very grave responsibility is placed upon the educators in our various institutions. That they realize this responsibility and are splendidly meeting it is evidenced by the personnel of their graduates. But they should never lose sight of the fact that it is not only their high privilege, but their bounden duty to not only give their students all the scientific knowledge possible, but to impress upon their minds the fact that when they enter upon their practice of the profession, the reputation of the entire profession is in their hands, and they should be taught both by precept and example that they owe a higher duty to themselves, the profession and the public than simply to put into practice what can be learned in text books. That while most of them may not be permitted to advance the profession scientifically, they are each in duty bound to advance it morally.

Let each one of us, however old or however young, receive an inspiration from this meeting, and as we return to our homes, let us remember that we each, individually, represent the entire profession in our respective localities; let us realize that the profession is advanced or retarded just in the proportion as we are a credit or a discredit to it, and as a chain is no stronger than its weakest link, let us each resolve to be a strong link an an unbreakable chain of professional honor. Then will the profession continue to advance until it obtains the position rightfully belonging to it and we shall have each fulfilled our personal obligation.

How poor are they that have no patience! What wound did ever heal but by degrees?—(*Shakespeare.*)

THE RELATION OF ECZEMA TO TISSUE REACTION AND CONSTITUTIONAL DERANGEMENTS.

By Dr. Edmund Mackey, South Saint Paul, Minn.

Presented to the Minnesota State Veterinary Medical Association at the Duluth Meeting, 1908.

In comparing a large number of eczematous diseases, a close observer will be struck by their marked dissimilarity in character and appearance. It is true, lesions will vary with the location of the disease, structure of the tissues, age and physical condition of the patient; but even when these conditions are as nearly as possible the same in different animals, the subjective and objective symptoms will be widely different.

The results of the usual methods of treatment are equally dissimilar and surprising to the veterinarian. One patient will recover in a few days with the help of a purgative and some soothing application, while another equally promising case will baffle the skill of the most experienced specialist, and drag along in misery for months and years.

The question may be asked: Why are some cases so amenable to treatment and others so rebellious to the most persistent efforts of the veterinarian? Our answer is that the treatment usually adopted conforms to the views of each veterinarian on the etiology and pathology of the disease. These veterinarians differ widely from each other because their views are derived largely from writers who advocate widely different theories, and these theories are accepted or rejected according to the convictions of those who are sought to be influenced.

One class of writers affirm eczema is strictly a local disease; another class point to micro-organisms as the essential factors, while another class attribute the disease to constitutional causes.

Now, these writers are all partly right and partly wrong, and any veterinarian who accepts unreservedly the theories of any one of them will find in practice they are inadequate, and often unproductive of satisfactory results.

It must be realized that many factors of a constitutional and local character may co-operate in the production of eczematous diseases, some in one case, and some in another, and it is incumbent upon the veterinarian to institute a careful search for such as operate in particular case, to the end that they may be eliminated.

Upon accurate diagnosis and a judicious choice of therapeutic agents successful results chiefly depend. Furthermore after ascertaining the predisposing and exciting cause of this disease, the veterinarian should not be satisfied to dismiss his client with a simple prescription for drugs, but should give him written instructions on hygiene and diet applicable to his case. The latter often contribute as much, if not more than the former, to a successful outcome of this disease.

The influence of constitutional disorders on the genesis of eczema will be recognized by those who are familiar with its history. It must be conceded that no external irritant is capable of producing a typical case of eczema in a perfectly healthy animal. But, on the other hand, an internal irritant, seconded by tissues which react to it, is capable at times, without extraneous aid, of developing the typical eruption.

If further evidence is needed to establish the relation of eczema to constitutional disorders, it is only necessary to refer to the inadequacy of local treatment alone to cure the disease. In view, then, of the above facts, it is reasonable to claim that eczema depends upon hereditary or acquired constitutional derangements, with tissues peculiarly endowed with a reaction to irritants. A prominent feature of these constitutional disorders is an accumulation and retention in the blood of peccant material which the emunctories have failed to remove. The emunctory organs, which are chiefly responsible for imperfect elimination of excrementitious matter, are the kidneys, liver, bowels and skin. Among these the kidneys and bowels are most at fault. In the most obstinate cases of eczema an examination of the urine will almost invariably disclose a deficient

excretion in both its liquid and solid elements, and in proportion to the improvement of these conditions will be noted an improvement in all the symptoms of the eczematous eruption.

The peccant materials retained in the blood are the uric acid, oxalic acid and other products of imperfect oxidation. In these chronic cases of eczema there is usually obstinate constipation, and this channel of elimination is proportionately blocked, with a consequent contamination of the system from absorption of toxic material.

The liver exerts a special oxidizing function, and many of the imperfectly oxidized products retained in the system are due to deranged hepatic functions, which are notable accompaniments of stubborn cases of eczema.

A thorough appreciation of all these concurrent phenomena and a wise application of the proper correctives will do much towards converting rebellious cases into readily curable cases of eczema.

The task of the veterinarian is to remove as speedily as possible the existing lesions, and rehabilitate the constitution and habits of the patient in order to diminish or abrogate the tendencies to relapse. With a thorough renovation of weak organs the tissues will gradually overcome the habit of reacting to slight irritants, and the patient will enjoy immunity from recurring attacks.

One of the most neglected or abused therapeutic agent in this disease is the bath. One class of veterinarians are incessantly rubbing and scrubbing their patients' bodies with hot or cold water applications, totally regardless of consequences, while another class scrupulously refrain from even the luxury of an occasional ablution. Without desiring to discuss at this time the merits or demerits of the bath in eczematous affections, it may safely be stated that, with the exception of special cases in which the infiltrated skin requires frequent application of soap and water, a bath once or twice a week is sufficient for hygiene of the skin and purposes of cleanliness under all ordinary cir-

cumstances of life. Oftener than this would be detrimental to the welfare of the patient, and should not be allowed.

One of the most tormenting symptoms of eczema is itching, and this is usually aggravated by the inordinate use of the bath. It should be the aim of the therapeutist, both by internal and external treatment, to abate this intolerable nuisance. By this means the comfort of the patient is not only promoted, but excoriations and complication from scratching are prevented. In a large proportion of cases an acid condition of the blood and constipation are the underlying factors. Added to these there will usually be hepatic torpor. To relieve these conditions alkaline purgative and mercurial preparations are indicated. An alkali should be selected with also exerts a diuretic action without a tendency to deglobulize the blood. Salts of Lithium and Potassium Carbonates will best fulfill these indications.

Better Municipal Meat Inspection.—With a view to increasing the efficiency and effectiveness of his meat inspection force, Chief Bayard C. Fuller, of the Food Division of the Health Department, of New York city, who had charge of that branch of the inspection since September, is making numerous changes in the system of inspection, notably providing that every abattoir in the city shall be inspected on behalf of the city, whether Government inspected now or not. A system of rotation has also been established, in order that the men will visit all establishments in turn. Measures which insure harmony between the state, city and federal inspectors have also been taken, with a view to securing the maximum of efficiency.

Recently Mr. Fuller has had his force increased by two inspectors and two veterinary physicians, and a system devised whereby all doubtful cases shall have prompt attention and expert investigation. The entire staff of abattoir inspectors has been uniformed and so equipped as to be prepared to conduct their inspection at close range with the butchers, rather than at clean and convenient distances. Each inspector is required to have two khaki uniforms and a cap, riding boots, etc., wear belt with knives, etc., and to personally watch the slaughtering proceedings. Uniforms are to be changed and washed weekly.—(*Journal of Commerce.*)

THE INJURIOUS EFFECTS OF THREE CALKED SHOES UPON THE HOCK JOINTS OF HORSES.

By James McDonough, D.V.S., Montclair, N. J.

Presented to the 25th Annual Meeting of the Veterinary Medical Association of New Jersey, Trenton, January 14, 1909.

It is not so many years ago that when called upon to examine a horse for soundness, or unsoundness, we were careful not to recommend one that showed well defined enlargements on the inside of the hock joints, where a spavin is likely to appear. But today we would scarcely undertake the task of finding a team that has not one or more of the hocks affected in this way.

As this condition is likely to result from an increased strain at that point, I feel that it is dependent upon us as veterinarians to determine its cause, and, if possible, to remove it. Not alone because this condition renders these animals less serviceable, and therefore less valuable, but also for the reason that the only possible cause why these animals are less serviceable is that they are rendered so by the suffering they endure as a result of this condition. So from a humanitarian standpoint we, whose duty it is to relieve so far as possible, the sufferings of all domesticated animals, should be the first to give this subject the most careful consideration.

With this object in view I have attempted, so far as my limited knowledge would permit, to determine the cause, if possible, or at least find some existing condition that might appear as a likely or possible cause. And as a result of this investigation and experimentation I feel that I can say to you without fear of contradiction that the three calked horseshoe, the ordinary every day heel and toe shoe, is responsible for more deformed hocks than all other causes combined.

The ability of the hock joint or any other joint to perform work is largely dependent upon the relation of its component

parts to each other. For, the slightest change in the relation of these parts can only result in a transfer of strain from one part of the joint to another. And it would seem that Nature when forming the hoof had in mind the necessity of providing ample support to the limb on either side. She evidently was conscious of the injury that would result from its displacement in that direction, for the greatest diameter of the hoof is at that place.

When we apply a three calked shoe we not only rob the hock of the extra support offered by the increased width of the hoof, but we rob it of all support on either side, and compel the animal to perform its work with the foot resting upon a surface of from 2 to 2½ inches in width at the toe, and from 3 to 3½ inches in width at the heel, with absolutely no support on either side. Now we have not only deprived the hoof of its lateral bearing to the extent of permitting the limb to deviate from its natural axis, but the increased wearing away of the shoe at its outer side, soon forces the foot into a position that causes a disequilibrium of the limb, thereby increasing the strain on the inside of the same which results injuriously to the hock joint, the seat of spavin.

To prevent this it is only necessary to provide a shoe with a calk on either side, midway between the toe and heels. By doing this we prevent the foot from rocking to either side, and provide for the limb the support necessary to insure for it some degree of comfort during the performance of its work.

For the same reasons I wish to state my objections to the use of the sharp calked shoe, with the additional objection that the inside calk is often made blunt to prevent injury to the opposite limb, thereby increasing the wearing qualities of the shoe at a point where the least wear takes place. And I wish to call your attention to the advantages of a shoe equipped with a dull calk on either side as previously referred to. These dull calks not only offer support to the quarters, thereby creating a stable base for the support of the limb, but they also provide a substantial wearing surface and reduce the work of the sharp calks to the prevention of slipping. I wish to lay special stress upon the advan-

tages of this shoe as compared with the three calked sharpened shoe of the present time, since I have used them on my horses with the most gratifying results.

I will now conclude by asking you to cooperate with me to the extent of taking such action at this meeting as will advance it to a point where a practical demonstration can be made, showing the advantages of this method of shoeing where calks are used. And, gentlemen, I feel that there is no one act that can be accomplished by this Association, that will result in so much good, and be more appreciated by the horse-owners throughout the United States as our discouragement of the use of a three calked shoe, and the substitution of one that will not only add to the comfort of the animal but increase his value by prolonging his usefulness.

A SUBSTITUTE.—"I am sorry, my dear sir, but I neglected to bring my surgical instruments with me." "That will be all right, doctor. The plumber who has been working in the cellar has left his tools here."—(*Exchange.*)

A TACTFUL CRESCENDO.—"In the province of Holstein," says a traveler who spends a good deal of his time abroad, "where, of course, nothing is more important than the breeding of superior cattle, the country people are not only very thrifty but exceedingly fond of their cows, as may be gathered from a characteristic story current there:

"It appears that one farmer was walking sadly down the road one day when the village pastor met him.

"'Why so downcast, friend?' said the pastor.

"'I have a sad errand, pastor,' replied the farmer. 'Farmer Henrick's cow is dead in my pasture, and I am on my way to tell him.'

"'A hard task, indeed.'

"'You may well say so, pastor, but I shall break it to him gently.'

"'And how will you do that?'

"'Oh, I shall tell him first that his father is dead, and then, having opened the way for sadder news still, I shall tell him that it is not his father, but the cow!'"—(*Harper's Weekly.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

CONGENITAL MALFORMATION.

Dr. C. L. Barnes, Veterinary Department, Colorado Agricultural College.

This photograph is of a six months' old filly presented at the Clinic of Veterinary Department. The sire of this filly had a deformity of one shoulder, projecting outward. The dam was a good Percheron mare. The filly when foaled could stand much straighter than at present, but as it grew older the legs became more bent out until at this time it can hardly walk. The photograph illustrates the tendency to congenital malformations and what may be produced when animals are bred with defects or abnormalities.

EXTRA UTERINE GESTATION.

By A. B. Summers, M.D.V., Alexandria, Ind.

December 3, 1908, at 7 o'clock P. M., I was called to see a Holstein cow, 6 years old, weight 1,100 lbs., which had been due to calve November 26. I found cow in a recumbent position and in great pain. I made her get up; she staggered and would kick abdomen with hind feet; her tongue was protruding from mouth, breathing accelerated, temperature 106° F.; vulva looked natural and no signs of wanting to calve outside of the colicy symptoms, so I prescribed magnesium sulphate, 1½ lbs., to be given in warm water. I told client I would call in the morning, as she might get ready to calve in meantime. Upon my return I found patient no better. I suspected extra uterine gestation, and, making a digital exploration through vagina, I

was positively convinced. I found the uterus empty and the os uteri closed in a normal condition. By this time the symptoms became alarming, hurried pulse, quick breathing, haggard expression, ears had fell forwards, and general indications pointed to fatal termination. I gave her 1½ oz. Chloral Hyd. and told client I would operate, but he would not submit her for an operation. November 5 I was hurriedly called and upon my arrival found cow dead. To confirm my diagnosis, as well as to satisfy my client, I held a post-mortem and found a fully developed fœtus in the abdominal cavity. The pseudo-membrane containing the fœtus had ruptured and the liq amnii had escaped; the hair had begun to slip on fœtus and body was tympanitic. Owing to rupture of the pseudo membranes around fœtus there were complicated inflammation and peritonitis. I found the rumen very small, probably had a capacity of only four or five gallons. The cow had been in a perfectly healthy condition up to time. Well, I learned something. Had I been called in time, which is rarely the case, I could probably have saved the cow and calf by operating. Should I have been correct in the diagnosis, which can positively be done by examination per rectum or vagina which will reveal the uterus in a natural (unimpregnated) size. Further exploration may detect a mass apart from the uterus and in the interior may be felt the characteristic body of the fœtus and if alive and can be stimulated to move the evidence is positive.

A MALIGNANT FORM OF CANINE DISTEMPER.

By Mark White, V.M.D., Denver, Colo.

I observe in Denver a form of distemper of the dog, which affects the animal quite differently from the usual form of distemper commonly met with. The dog shows the digestive complication and bleeds from his nose and discharges with it some pus, later the mucous membrane of the mouth shows a brick red discoloration and inflammation followed by bleeding from the mouth and bowel. These cases all die within a period of not over seven days, and appear to mortify in the bowels before death, the odor from the mouth being horrible. The mucous membrane looks like the mouth of a copper head. I have never seen one of these cases that recovered and they are very numerous; would guess that 5 to 10 per cent. of the cases of distemper that I see are of this severe form. They all die in spite of the best treatment I am able to apply.

TAPE WORM COMES OUT OF GUNSHOT WOUND IN DOG.

By Mark White, V.M.D., Denver, Colo.

Bull terrier dog, shot through the abdomen on right side, bullet passing through the bowels and lodging under the skin on the opposite side. The bullet was a 22 caliber; the dog died from internal hemorrhage of the bowels. The peculiar coincident of the case was, on first view of the dog I observed a tape-worm, twelve inches long, hanging out the hole made by the bullet on the side of the dog, which was the right side. Can any one explain how a tape-worm could find its way out from the intestines of the dog, passing from the abdominal cavity, peritoneum, abdominal muscles and the skin to the exterior of the dog? It must be remembered that the bullet did not pass out through the skin of the left side, but lodged just under the skin, so it was not possible for the worm to have been shot through and out of the dog.

Wanted the Other One.—A handsome and neatly dressed young woman was walking down the street the other day, followed by her favorite dachshund pup. It was market day, and the pavement being somewhat crowded caused the dog to get some distance behind its mistress. Fearing it would lose sight of her, she called, "Come along, sir!" A would-be wit who was near stepped up to her and with great politeness said, "Certainly, miss." "Ah," she exclaimed as her pet came running up, "you have made a mistake! This is the puppy I called."—(*London Tit-Bits.*)

Slippery Streets Rendered Safe.—Consul Frank S. Hannah reports that the street cleaning department of Madgeburg has recently made successful experiments with a new sand-strewing wagon constructed by Hermann Fricke of that German city. The wagon spreads rapidly an even layer of sand on the streets which, in the case of asphalt paving, is of great benefit, in that it minimizes the slipping of the horses when the streets are either extremely wet or frozen. This has heretofore been done in German cities exclusively by hand. The apparatus is worked by the driver and can be adjusted to strew a layer of sand or gravel from 6 to 16 meters (19.68 to 52.49 feet) wide. The new machine has been taken over by the city.—(*Consular Report.*)

ARMY VETERINARY DEPARTMENT.

VACANCIES IN THE ARMY VETERINARY SERVICE FILLED.

With the appointment of Dr. Alfred L. Mason to the 13th Cavalry, and that of Dr. Herbert S. Williams to the 15th Cavalry, the long remaining vacancies in the Army Veterinary Service have finally been filled.

By the acts of Congress of March 3, 1899, and February 2, 1901, forty-two positions for veterinarians were created for the cavalry and field artillery, and it took the military examining boards all these years to find properly qualified candidates from the many of our American veterinary colleges, even with the bars let down as to the age-limit (27 years) of several of the successful candidates.

This record is not particularly pleasing. It is difficult, of course, to assign a just cause for this circumstance, and while a large number of candidates have failed to satisfy the examining boards as regards their qualifications, it seems, on the other hand, that the military authorities are willing to acknowledge, that the position of the Army Veterinarian is not attractive enough to induce the best of our American veterinary graduates to enter the service.

Telephone Communication Between Two Riders.

In the Cavalry Journal Lieut. A. C. Knowles describes the method of communicating by telephone between two mounted men separated by a distance of five miles and on the move. This was done by placing a small piece of copper (properly connected to the instrument) against the animal's body, and as the horse always has one or more feet on the ground while moving at any gait, except possibly the gallop, which would seldom be resorted to, the ground connection is completed through one or more hoofs. Of the several horses used in these experiments, only a few showed any discomfiture, and those that were affected by the current were soon quieted. They appeared to exhibit surprise rather than pain at something unusual, to which they quickly became accustomed. These tests were made over all kinds of

ground—very wet, muddy, moist, perfectly dry and dusty roads and fields, with results of practical value. With two mounted operators similarly equipped, and separated by five miles of wire, conversation was carried on without difficulty, the horses standing in grass. The buzzer was loud enough to be heard several feet from the instrument.

Remark.—This is a discovery of a new and interesting usefulness of the horse. Curiously enough, something of this nature was suggested by an army veterinarian in conversation with a young officer of the Signal Corps as long ago as 1904, but the idea met then only with a smile. Now, however, it has become an invention of the Signal Corps, which undoubtedly is given credit not only for the practical application but for the idea as well. The successful installation of a transportable wireless apparatus in the field, as shown in our last year's manœuvers, may soon make all telephone connection on the battle field unnecessary, but in emergencies the horse will be found to be there for the above use when all else has been disabled.

O. S.

His Definition.—A teacher in a certain school asked for the definition of a furrier. A hand was raised. "Well, John, you tell us what a furrier is." "A man who deals in furs," correctly replied the pupil. Then, turning to another scholar, the teacher asked for the definition of a currier. "A man who deals in curs," was the unexpected reply of the eager boy.

Results of Experiments With Morphine.—From experiments on dogs Faust had concluded that the comparative immunity against morphine which follows from its habitual use, is not due to the tissues becoming accustomed to the drug, but to an increasing capacity of the organism for destroying the poison. This view has recently been confirmed by Rübsamen, who showed that immune rats actually do break down the morphine in their system more rapidly than the normal rats. However, it appears that the immunity must be due to two causes: first, as stated above, to an increased capacity for destroying the poison in the system, and secondly, to a cellular immunity, for within the first hour after injection a large amount of the poison still circulates in the body, without affecting the individual.—(*Scientific American.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Azoturia [*G. Jones Roberts, F. R. C. V. S.*].—A bay mare, six years old, has been in the stable for two days, is put to work and about two miles from home had a very bad attack with the usual symptoms. Treated, she makes an uneventful recovery. Three months later, she had another attack following a rest of one day and "every time she was taken out for exercise, if it was only for 200 yards, she would get a slight attack." In those, the urine was not discolored. She was turned out for four months and when taken up, worked well for a year, when she picked up a nail. Fed then only on hay and bran, when she is exercised for the first time, she showed the usual symptoms. All right after a fortnight, she is exercised one hour and later driven about ten miles, when she was taken badly. In all she has had about twenty attacks and now is working all right again. Her superior qualities as the best trapper he ever had made the owner keep her.—(*Veter. Record.*)

Vaginal Tumor [*O. Trevor Williams*].—Suffering with acute pains and difficult micturition, a two year old filly was visited by the author. She is covered with perspiration, passes urine only in dribbling quantity and on examining the vagina, it is found blocked with an enormous growth. It is attached by a large, thick peduncle from the roof of the vagina, right above the os uteri. Its size prevents it being brought out in a mass, it was decided to take it off in parts. Three pieces were torn away first and the remainder then pulled through the vulva it was possible to apply a strong ligature round the peduncle. The hemorrhage was stopped and the balance of the tumor taken off. The peduncle was as big as a man's wrist. The whole tumor weighed eleven pounds. The recovery was uneventful. (*Ibid.*)

Rupture of the Stomach [*Major R. L. Crawford, A. V. C.*].—A mare showed on the near side of the neck and on

the shoulder abrasions of the skin which were said to be due to bites from another horse but which proved to be due to injuries from a kick. Three days after, there is an œdematous swelling extending in front of the chest and between the fore legs. The temperature is up to 103°·F. Manifestations of post pharyngeal abscess are exhibited and also muco-purulent discharge from the nostrils. Later portions of food returned by the nose. About two-thirds down the neck, just over the abrasions, pointing of the skin is observed, lanced and the cavity dressed with carbolic solution. The next day fluid and food are discharged through the opening of the abscess. This is enlarged by an incision made downwards and a rupture of the œsophagus is exposed with edges foul and necrotic. The animal was destroyed. The post mortem revealed that the rupture involved the œsophageal coats about two-thirds across with the edges sloughing. The surrounding muscles were infiltrated and in a state of decomposition. There was a collection of pus in the gutteral pouches not in connection with the injury of the œsophagus.—(*Veter. Record.*)

Purulent Metritis [*C. V. Dalrymple-Hay*].—A fox terrier slut had a purulent bloody discharge from the vulva. Vaginal examination revealed nothing in utero, but from outside palpation, showed the cornua full and hard. As the animal is in very low condition, it is decided to operate on her as the only chance of saving her. The abdomen was opened, followed by escape of serous effusion and blood. Both uterine horns were brought out and the left found ruptured. Hysterectomy was performed, uterus and cornua being taken off. The temperature was 104° F. on the day of operation and fell two degrees during the next two days. The slut recovered without any trouble.—(*Veter. Journ.*)

Cerebro-spinal Meningitis in Dogs [*E. H. Stent, M. R. C. V. S.*].—Record of an ourbreak in which four fox terrier bitches had been affected showing stiffness in gait, grunting in being touched, with later an inability to rise. There was rapid breathing, but the appetite was normal. In one being placed standing on her four legs, she could stand but was afraid to move, when started to walk she would move quickly with short steps. On moving her head to the right, the tail would curl to the left and vice versa. On raising her head she would suddenly collapse. At the post mortem the meninges of the brain

and cord were found much inflamed. Considering the trouble as of infectious nature antiseptic treatment was resorted to, sublimate injections in the uterus and iodide of potassium internally. Tonics and heavy feeding. This was followed by good results. Disinfecting measures were also resorted to.—(*Ibidem.*)

Rare Accident During Pregnancy [*A. W. Noel Pillers, M. R. C. V. S.*].—A mare was pregnant and about her time she is found lying down and said to be foaling; she is made to get up and then she began to kick with all her four feet with such vigor that it has become dangerous to go about her. As she had laid upon stinging nettles, these were supposed to be the cause of her behavior. But on looking about her abdomen and under it, it was found that the skin, from the umbilicus back to the udder, looked as if it was going to crack. Then suddenly a piece of the bowels protruded, which was soon followed by more. The intestines, kicked about and torn and entangled with her hind legs, soon all dropped to the ground. The mare fell down in agony and soon died. The foal was taken out of the uterus alive but lived only two days. No positive cause could be attributed to the accident.—(*Ibidem.*)

A Form of Skin Disease in Dog [*Prof. J. F. Craig, M. R. C. V. S.*].—The animal has had skin trouble for several weeks, which, treated with sulphur, has been getting worse instead of better. He scratches much and the head is most affected. A large raw wound due to scratching is below the left eye and round it the hair is all off. There are dark small areas scattered over the skin around both eyes; these are sub-cutaneous hemorrhages. A few of them contain thick fluid of dirty brown color. Where these burst, there remains a small ulcer. Similar lesions are found inside the left thigh and on both fore legs. No bacteria or other parasites could be found. Calomel, liq. arsenicalis and syrup of ferri iodid. were administered, and in two days general improvement was manifest and followed by complete recovery.—(*Ibidem.*)

Two Interesting Cases of Prolapsus [*J. Eddes Tail, M. R. C. V. S.*].—1. *Amputation of the uterus of a ewe.* The animal had delivered two live lambs but had a prolapsus of the uterus, which was much soiled and gangrenous. Amputation was resorted to as follows: "A large needle and a double thread were passed through the center of the mass, after thoroughly cleansing it as well as possible, with warm carbolic acid and

water and the ends were tied off around it on either side. The part below this was then amputated. No hemorrhage resulted and the stump was returned into the vagina." Within a week the animal was as well as ever.

2. Amputation of the Rectum in a Dog.—A pointer puppy has 5 inches of his rectum protruding. Excision was the only hope to save him. "Taking two needles, each with a long single thread, they were passed through the center, the protruding portion was excised and the threads were picked up where they crossed and four separate ligatures made. When tied, these enclosed the whole of the wall of the bowel. There was very little straining and no complication followed."—(*Veter. Journ.*)

Deferred Displacement of a Spinal Fracture [*D. Chatterley, M. R. C. V. S., and Prof. G. H. Wooldridge, F. R. C. V. S.*].—Aged chestnut gelding has his mouth in bad condition, the teeth are sharp and the mucous membrane very sore and ulcerated. The horse is cast to have his teeth fixed. He goes down easily, struggles violently but gets up without difficulty and walks to his stall. The next day he seems stiff and is off his food. This passes off in a few days. Six days after casting he lays down and after 10 or 15 minutes gets up. In the afternoon he lays down again. Next morning he is found unable to rise. He dies two days later. At post mortem, the last dorsal and first lumbar vertebrae, which had been ankylosed during life, were found fractured. It is supposed that the injury was received the day of the casting but that the displacement did not take place for several days after when the horse had laid down.—(*Ibidem.*)

A New Worm in Ostriches [*W. Robertson, M. R. C. V. S.*].—This worm has been recently met in ostriches in the colony. It has a somewhat curious situation, being outside the abdominal viscera, between principally, the outside walls of the stomach and the back bone. They are found embedded in a piece of loose membranous material. Their length is very great. Complete specimens have measured 3 feet 6 inches in length. In all the cases where it has been found, it would appear not to have produced any harmful results. In three cases where the writer has found them, the birds had died from injuries and the worm had nothing to do with their death. Examined by an authority he has written that the worm belongs to a species of Dicheilonema.—(*Agric. Journ. Cape of Good Hope.*)

FRENCH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Torsion of the Uterus in a Sow [*Adj. Prof. C. Cluny*].—Such cases are rare and classical works say almost nothing of its possibility. The author has observed the following, which took place on one of the uterine cornua in a pregnant four year old sow, which had had several litters before, and this time has already delivered seven well formed little fellows, which were found dead on the straw behind her. Usually very ugly and difficult to approach she is now quiet, good natured and is constantly laying down. It is hard to make her get up. She is not making any expulsive effort, but appears to be in great pains. Firmly secured, an exploration is made with the hand introduced way in the uterus which is found empty. The cavity of the right cornua is empty also. But on the left side, the hand is arrested by the opening closed by the folds of the mucous membrane. Pushing the fingers forwards, a kind of funnel was felt which prevented any further entrance. Through the walls, the presence of a fœtus is detected. The diagnosis was evident, viz: Torsion of the horn with fœtus in the cavity. In what direction was the torsion, could not be made out, prevented as the hand and fingers were, in their exploration by the mucous membrane sticking and adhering to the hand. The owner preferred to have the animal slaughtered than to run the chance of a surgical interference. Cœsarian operation, or partial hysterectomy. On examination of the carcass it was found that the right horn had a torsion making a complete twist and that, as a consequence, had prevented the exit of 5 fœtuses, which were all well formed, dead and not putrefied.—(*Journ. de Zootech.*)

Encephaloid Sarcoma of the Pancreas [*Mr. Delroye*].—Tumors of the pancreas of the domestic animals have seldom been recorded. The present was found at the autopsy of an old horse.

The tumor was very large, about five or six times bigger than the organ on which it had developed and which was involved in it. It was bigger than a man's head. Its form was irregular, lobulated, and constituted by a series of lumps irregularly arranged, varying in size from that of the fist to that of an egg. One of them was as big as a kidney and has also the

form of it. It had a whitish aspect and upon section, it shows as well as it did on the outside, here and there red stria and some yellow softened nodules; but altogether the tumors had the aspect and consistency of lardaceous tissue. The whole mass weighed 2 kilogs. 300 gramms. The histologic examination revealed its nature of encephaloid sarcoma.—(*Ibidem.*)

Abnomalies of Genital Organs in Horses [*Doctor Moore*].—These were obtained at the abattoir of Hippophagy and were found in two geldings, which both had atrophy of the penis. In both the urethra after coming out of the pelvis, instead of bending forward round the ischial arch, ran directly forward towards the perineal region where it ended. In one horse, the penis formed by big and strong cavernous bodies, had a glans penis, or normal size, with a long sheath. It measured 5 centimeters in length. In the other horse, the atrophy of the penis is complete. The extremity of the penis resembles a large clitoris turned upside down, it measures 2 or 3 centimeters and is also covered with a large fold of skin. Both these horses were cryptorchids. The testicles, not larger than a hen's egg, were attached to the lumbar region. The efferent canals and vesicula seminalis were atrophied. In one horse the prostate was normal in size.—(*Presse Veter.*)

Late Diagnosis of Diabetes Mellitus in a Dog—Irregular Ocular Manifestations [*C. Eisenmenger, Army Veterinarian*].—A twelve year old French poodle is dull and has lost his appetite since three days. The left eye is cloudy. After a few days, these conditions have subsided. The trouble was considered as a traumatic cataract, which in an animal rather nervous, has caused loss of appetite. Three months later, the same symptoms reappeared. The left eye is again opaque; but the opacity is more marked round the periphery than on the center of the crystalline lens. Besides the animal having scratched herself frequently the hair round the eyes is off. After eight days all these symptoms have disappeared. A second time an error of diagnosis was made and the new cataract attributed to some external cause. Six months later the animal has lost flesh, the appetite is delicate, she has great thirst and urinates abundantly. Then diabetes is thought of. The urine analyzed is found to contain 9 gramms 75 of sugar in every litre of urine. Anti-diabetic regime is prescribed and directions left to have the urine analyzed as soon as the manifestations of new cataract

occurred. Two weeks after a double cataract is present and 17 gramms 328 of sugar found. The right eye was less affected than the left which was entirely opaque. At another attack of cataract, the animal being entirely blind was destroyed. At post mortem, the liver was found with a dark brown color, slightly hypertrophied, and surrounded with a serous coat. The heart rather large was healthy. Kidneys normal.—(*Rev. Gener. de Medec. Veter.*)

Attack of Epileptiform Vertigo [*Mr. Caillibaud*].—A 17 year old Anglo Normand mare, used for saddle and draught purposes, has for four days been working in a team. The fifth day, she travels about 20 kilometers, rests 2 hours and coming home, goes 4 kilometers when she presents the following symptom. Suddenly she becomes nervous, rears two or three times, drags her mate on one side and drops down. Her body is shivering all over, her teeth are grinding against each other, lips are trembling, face is contracted, abundant perspiration all over her body. Conjunctiva is scarcely congested, pulse is about normal, artery hard. After five minutes she gets up, walks staggering pushing forwards and falls. After a few minutes more, the symptoms subside. She then rises, has a normal micturition, drops a few balls of manure and gradually regains her normal appearance. She is taken home and resumes her work the next day in perfect condition. The author explaining this attack rejects the idea of an epileptic attack, as the mare is 17 years old and has never manifested any symptom similar to those of epilepsy. He rejects the supposition of sun stroke also and attributes the manifestations to the fact that the old mare had a Dutch collar on, when in harness, that ambitious as she was, and pulling very hard the collar interfered with the circulation; cerebral circulation was stopped and the vertigo occurred. As the mare was old, and suffering with arterio-sclerosis, the circulation was slow to resume its normalty in the arteries, hence the duration of the manifestations.—(*Rev. Veter.*)

Hypertrophied Cotyledon in a Cow [*Mr. Magneron*].—The day following a normal delivery, without accident, a cow makes violent continuous efforts which after a few hours are followed by the apparition at the vulva of a tumor, as big as a man's head; globular, dark red in color, and having on its surface some remains of the placenta. By vaginal examination, the tumor is found pedunculated and adherent to the mucous membrane of

the uterus. Further on was found the fundus of the uterine cornua which is partly prolapsed. After cleaning the parts as well as could be done, a catgut ligature was applied on the peduncle of the cotyledon and the mass was then excised. The prolapsus of the uterus was then reduced. In a few days the animal was well. The cotyledon weighed 2 kilogs 400. (*Rev. Veter.*)

Pulmonary Embolus.—Sudden Death [*Mr. Th. Monod, Army Veterinarian*].—A six year old horse dies suddenly. Nothing wrong had been observed on him; he had been turned loose in the morning and had jumped and kicked freely, he had drank and eaten as usual. The stableman had his attention called by his sudden fall; and as he reached him, finds him dead. Post mortem. The cadaver is in perfect condition. The conjunctivae are pale, the buccal mucous membrane slightly cyanotic; there is no effusion in the splanchnic cavities. Left lung is normal. The right is very firm, œdematous and impermeable; no congestion, no hemorrhage or inflammation present. It seems as if the pulmonary acini are gorged with blood serosity. In making sections of the lung, an embolus of the pulmonary artery is found on a level with one of its first ramifications. The clot is about as big as a small finger, it rides on the edges of a bifurcation of the artery and measures 3 to 4 centimeters in its simple portion and one or two in its bifurcated. It is dense, dry, very rich in fibrin and easily broken up. It is surrounded with a large red clot which occupies the principal branch of the pulmonary artery and the cavities of the right heart. It extends in the vena cava. The presence of the embolism explains the sudden death; but its origin was not discovered.—(*Rev. Veter.*)

Traumatic Arthritis in a Cow—Disarticulation—Recovery [*Mr. P. Bitard*].—A cow is reported having a bad sore foot and is unable to put weight on it. Indeed, there is an enormous swelling, hard round the coronet of the right hind leg which indicates traumatic arthritis or peri-arthritis, and is extending upwards near the fetlock. On the lower face of the coronet, there is a fistula running in the second inter-phalangeal articulation from which escapes sticking sanious pus. Standing up the animal puts no weight on the leg, which is spasmodically moved up and down as suffering with lancinating pains. The general condition is falling off, the animal losing flesh rapidly and to sell her to the butcher means great loss. Amputation is proposed and accepted by the owner. The animal was thrown and

properly secured. The parts aseptized as well as possible and the amputation performed between the first and the second phalanx, care having been taken to save the skin and the coronary band as much as possible, in order to obtain a solid horny protection for the amputated portion. An antiseptic dressing was applied and the animal allowed to get up. After a week the dressing was changed. The animal only then began to put her foot on the ground and gradually improved. The cavity left by the removal of the phalanges filled up, a secretion of keratogenous tissue formed and a protecting cushion grew for the amputated digit. After 4 weeks the animal rested her foot well on the ground, and after six, walked well. Finally she put on flesh and was disposed of for a good price.—(*Prog. Veter.*)

BELGIAN REVIEW.

By Prof. A. Liautard, M. D., V. M.

Pleuro-pneumonia Due to Foreign Body [*M.M. Genot and Mahia, Army Veterinarians*].—An Irish mare suffering with sinusitis, has the left frontal and superior maxillary sinuses trephined, and injections are prescribed twice a day of antiseptic and slightly astringent solutions to be made with the apparatus of Esmarck. At first the liquid returned freely through the nostrils, but the animal became nervous and rebelled to the injections; she had to be placed in stocks and as she soon took the habit of swallowing the liquids of the injection, which were thrown into the sinuses, to prevent it, the tongue is held, and pulled out of the mouth. For a few days, all went well but one morning it is noticed that her breathing is loud; she breaks out in abundant perspiration, she has violent spells of coughing. She suffers from the introduction of a 2% solution of creoline into her lungs. Broncho-pneumonia is soon fully developed. After a few days pleurisy is no longer doubtful and after one month of treatment when the pleurisy has become purulent and the pneumonia gangrenous the animal dies with 30 litres of turbid serosity in the chest, with a nasty odor of rotten eggs, in

which float fibrinous clots. The lungs are gorged with blood and on section show the pulmonary alveoli containing but little air. Heart, liver, spleen and kidneys have the aspect of infectious organs.

MORAL: There is always great danger in preventing the deglutition of liquids in horses, not only during the giving of drenches but at all times. This case also demonstrates the evolution of a pleuro-pneumonia by foreign body in the lungs, when the ordinary result is gangrenous pneumonia only.—(*Annales de Belg.*)

A CASE OF CEREBRAL TUBERCULOSIS IN A BOVINE [*Prof. A. Vanden Eckhout*].—Tuberculosis of the nervous centers is not uncommon in cattle, and the lesions may locate on the meninges or in the nervous substance itself; hence in clinical phraseology two forms of tuberculosis are accepted, a meningo-encephalitis and a meningo-myelitis. To this last belongs the following case:

A two year old cow is said to be suffering with gid. She is very thin and presents pathological manifestations of the functions of locomotion and innervation. The nervous functions are most depressed and the animal shows the general signs of immobility. She assumes most peculiar positions and remains in them; her back is arched, her four extremities kept close together under her abdomen, if her front legs are placed crossing each other she keeps them in that position as an immobile horse; she shows no sensitiveness to pressure upon the cornea or to the introduction of the finger in her ear. She takes no food nor drink. If forced to walk, she moves in a circle to the left. There is slight nasal discharge. Respiration is slow, vesicular murmur abolished. Cuti and ophthalmo test with tuberculin are negative. Subcutaneous test gives a strong reaction. The animal is pronounced tuberculous and killed. The principal lesions are in the brain. The meninges are infiltrated; there is an abundant yellow serosity. The left frontal lobe of the cerebrum is harder and more firm than the right. It shows on section a tissue of yellow granulations. These tuberculous lesions exist also in the right frontal lobe, but are not so extensive. Besides these cerebral lesions, tubercles are also found in the lungs, bronchial and mediastinal lymphatics and in the liver.—(*Annal. de Belg.*)

CONGENITAL ABNOMALIES OF THE HEART [*Mr. Huymen*].—These were observed in bovines, where generally speaking, they are not rare.

Rulot has described one in a three months' old calf, which died of pulmonary apoplexy. The heart was hypertrophied; the left ventricle presented six openings: (1) The aortic opening; (2) the two auriculo-ventricular; the right auricle did not communicate with the ventricle; (3) an orifice of communication between the two ventricles through the septum; (4) two other openings of communication between the two ventricles.

Vanden Eckhout observed in a steer one and a half years old, a shivering at the cardiac region. The animal died of gangrenous broncho-pneumonia. At the post mortem was found hypertrophy of the right ventricle, perforation of the intraventricular septum, and persistance of Botal's foramen. The writer has observed two cases of congenital affection of the heart. In one there was increase in size and weight of the organ, the right heart was the most hypertrophied. In the septum, there was an opening establishing communication between the two ventricles. The aortic opening, widely dilated, was riding over the interventricular septum. In the other, the lesions were similar but besides the foramen of Botal was not obliterated.—(*Annales of Belg.*)

Exports of American horses during the six years ending June 30, 1908, were valued at $21,000,000, while imports for the same period were valued at $10,000,000. Three-fourths of the import values represented stallions and mares of established European breeds brought in duty free for breeding purposes.

The Ark Up to Date.—Little Richard had been given a lovely ark for Christmas. It contained everything you could think of—elephants, butterflies, spotted cows, blue monkeys, green cats, yellow dogs with purple spots, and a Noah and Mrs. Noah standing at strict attention.

But it didn't contain everything little Richard could think of.

One day his father came upon him placing a couple of tiny splinters in man's first boat.

"And what are they, Richard?" inquired the perplexed parent.

"Why," replied Richard, "dem's microbes. Dere must 'a' bin a pair o' microbes in de ark!"

And, when you come to think of it, so there must.—(*John Bull.*)

CIVIL SERVICE EXAMINATIONS.

VETERINARIAN.

PHILIPPINE SERVICE.

The United States Civil Service Commission announces an examination on February 17, 1909, at the places mentioned in the list printed by the Commission, to secure eligibles from which to make certification to fill about 25 vacancies in the position of veterinarian in the Philippine Service, at $1,600 per annum each, and vacancies requiring similar qualifications as they may occur in that service. Appointees are allowed field expenses when absent on duty from their permanent stations.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subjects.	Weights.
1. Letter-writing	10
2. Veterinary anatomy and physiology	20
3. Veterinary pathology	20
4. Veterinary practice	40
5. Training and experience	10
Total	100

Seven hours will be allowed for this examination.

Applicants must indicate in their applications that they are graduates of reputable veterinary colleges.

Information relative to employment in the Philippine Service, cost of living, leave of absence, transportation, climate, clothing, medical attendance, contract, etc., is contained in section 32 of the Manual of Examinations revised to January 1, 1909, a copy of which may be had upon application to the Civil Service Commission, Washington, D. C.

Applications which are not received in time for this examination will be placed on file for the examination to be held on March 10, 1909.

Age limit, 18 to 40 years on the date of examination.

The medical certificate must be filled in by some medical officer in the service of the United States. Applicants should appear before medical officers of the Army, Navy, Indian, or Pub-

lic Health and Marine-Hospital Service. If such an officer cannot be conveniently visited, a pension examining surgeon may execute the certificate. Special arrangements have been made with pension examining boards throughout the country to give such examination for a fee of $2, to be paid by the applicant. This certificate must not be executed by the family physician of the applicant. The medical officer should indicate his rank or official designation on such certificate.

Each applicant for the Philippine Service will be required to submit to the examiner, on the day he is examined, a photograph of himself, taken within three years, which will be filed with his examination papers as a means of identification in case he receives appointment. An unmounted photograph is preferred. The date, place, and name of examination, the examination number, the competitor's name, and the year in which the photograph was taken should be indicated on the photograph.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed by the Commission, for application Forms 2 and 375. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

It isn't always well to take the bull by the horns, because under the circumstances you can't very well let go without trouble.—(*Boston Republic.*)

BIBLIOGRAPHY.

TEXT BOOK OF MEAT HYGIENE, an American translation and amplification by John R. Mohler, A. M., V. M. D., Chief of the Pathological Division, and Adolph Eichhorn, D. V. S., Assistant in Pathology and Bacteriology, Pathological Division, of the United States Bureau of Animal Industry, of the second edition of the Text Book by Medical Counsellor Richard Edelmann, Ph. D., Royal State Veterinarian of Saxony, etc. 402 pages, 157 illustrations, 8 colored plates. Howard & Co., Washington, D. C. 1908.

To those interested in the many-sided subject of meat hygiene, the publication of this book has opened wide the doors to fields where hitherto we could only gain our knowledge from the gleanings of personal experience. Previous to passage by the Congress of the United States of the Act of June 30, 1906, which is generally known as the Meat Inspection Law, a veterinarian employed by the Bureau of Animal Industry in abattoir inspection was required to be an expert upon the antemortem and postmortem characteristics of the various diseases of the food producing animals. Immediately after the passage of this act, the veterinarian was called upon to fill a field which not only required expert knowledge of the diseases of animals, but also of the preparation of the numerous meat-food products, together with the possible changes which might occur, not only during the process of manufacture, but until the time of consumption. The care of waste products, sanitary problems, abattoir construction, and refrigeration, all demanded expert supervision. This sudden call by the Government for a change in the mental equipment of its men found our veterinary graduates, as well as our colleges, unprepared to cope with this new diversified field. What was probably the greatest difficulty which had to be surmounted was the fact that in the English language there was not a book which fulfilled the demands as a guide. Doctors Mohler and Eichhorn, realizing this need, found that in 1907 Richard Edelmann published a second edition in German of his text book on "Meat Hygiene." This work contained the desired material in concise detail with a percision characteristic of the German scientist. And so, with the permission of the author, they undertook the task of translating his book into English for the benefit of our American veterinary profession, and through them, of the general public, at the

same time adapting its statements to conditions in the United States, including the regulations covering the entire inspection work as issued during the present year by the United States Department of Agriculture, and further amplifying it where, in their judgment from experience and exhaustive investigations in both the packing house and laboratory, they deemed it desirable. As a result, we now have accessible a text book of Meat Hygiene which will enable our colleges to thoroughly prepare students for the broad field which they must occupy, and will give to those already in the service of the Government as well as the general practitioner an opportunity to materially add to the knowledge which they have gained in the school of experience at the great meat-packing centres of this country.

After carefully surveying the four hundred pages of this book, a person cannot help but appreciate the thoroughness with which it treats of the origin and source of meat food; morphology and chemistry of the principle tissues, including the peculiarities of meat of all varieties of animals from which we derive our food; the production, preparation, and conservation of meat, and abnormal conditions, postmortem changes, and diseases of animals. Special chapters are devoted to the Federal regulations; the construction and management of abattoirs and stockyards, the history of meat hygiene in Europe, the United States, and in Canada. Throughout, there are interspersed excellent illustrations.

In the opinion of the REVIEW, this new publication on meat hygiene, by our esteemed professional brethren, filling, as it does, a great need, is already assured of success, and should receive the profession's best support.

THE ALLEVIATION OF SUFFERING.—The work of helping others in the terrible Italian catastrophe has so softened the sensibilities of the soldiers and sailors who largely compose the search parties that many incidents of tenderness to animals are related. A company of pioneers, attracted by weak groans beneath a pile of ruins in a cellar, began feverishly to remove the debris.

The groans continued while the soldiers worked for an hour to reach a corner of the cellar from whence they came. They presently found the victim, but it was only a donkey, which, however, the soldiers carefully lifted out and took to the barracks, where every care was lavished upon him.

CORRESPONDENCE.

CONFERENCE OF VETERINARIANS.

UTICA, N. Y., January 16, 1909.

EDITORS AMERICAN VETERINARY REVIEW:

The following are some notes I took at the conference at Ithaca for the REVIEW, January 12-13, 1909. There were 75 present; a general good feeling prevailed. Enclosed find program. Papers were fine and well discussed. President Schurman's remarks were fine. He complimented Dr. Moore; he mentioned the needs of the profession. The "smoker" was excellent; it was under the supervision of the students; college yells and songs prevailed.

Dr. Williams' new surgery is a model; the recovery stall is something grand; it must be seen to comprehend its usefulness. Dr. Williams gave a surgical clinic.

The case of granular venereal disease of cow was very interesting and brought out some very good remarks. First time recognized in this country, so far as Dr. Williams knows.

V. M. A. of N. Y. City was well represented, as was Buffalo.

Commissioner Pearson stopped our train and made few remarks; his ambition is to have an ideal veterinary service connected with his department; wishes to have a closer relation between the veterinarian and agriculturist; veterinarians for expert work; complimented the veterinarians, commended the department in regard to its control of foot-and-mouth disease; he is loyal to our profession; he mentioned that there was likely to be some legislation in regard to meat and dairy inspection, and the veterinarian would be prominently connected with the same.

Dr. Berns, at the close of the conference, moved a hearty vote of thanks to Dr. Moore, faculty and students for the excellent time given us, which was received heartily, and also proposed that it be made a yearly affair, which was also received with cheers.

Yours respectfully,

W. G. HOLLINGWORTH.

SOCIETY MEETINGS.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

The 26th annual meeting was held at Lexington Hotel, Chicago, Ill., December 1, 1908, with the President, Dr. C. C. Mills, in the chair. Minutes of previous meeting were read and approved. Seventeen new members were elected.

President Mills' annual address was one of the most masterly and interesting addresses ever delivered before the Association, and is as follows:

PRESIDENT'S ANNUAL ADDRESS.

Gentlemen and Fellow Practitioners—It is with no slight degree of pleasure that I offer a word of greeting to the members, old and new, and to the visitors at this the twenty-sixth annual meeting of the Illinois State Veterinary Medical Association. Certainly no more auspicious time could be found for such a gathering than during the splendid exhibition of live stock in the International Show at the gateway to the greatest live-stock centre of the world, the Union Stock Yards of Chicago. Occasionally we view this vast array of animals with little real comprehension of what it has cost to bring all this before our eyes, whether we view the live-stock in the magnificent buildings and the grand show-ring or whether we attempt to draw our lesson from the yard or the slaughter house with their thousands of animals for the packer, we do not see the real story of what it has taken to place them there. Our perception can partially include the cost of feeding and maturing, of losses and reverses which must be counted in endless succession for completed events and unerring calculations.

Our Part as Sanitarians.

It may well be then of no small satisfaction and of no small import that we come together in these conventions as sanitarians and administrators to the health of the individuals comprising so wide and so varied an industry. We gather here to exchange views and discuss methods whereby the health of live-

stock may be preserved, diseases better combated and, let us hope, some of the scourges finally completely eliminated. Of no small magnitude is the task which the conscientious sanitarian of the present day has before him. Our part as veterinarians of Illinois appears with importance when we realize the fact that our own commonwealth leads all others in the number of horses owned in the state and in the aggregate valuation also. According to data furnished by the Department of Agriculture, Illinois has nearly 1,600,000 horses with a valuation of more than 170,000,000 dollars. Add to this the valuation of all other kinds of live-stock and their products and a glance will show an immense industry. Whether we confine ourselves to that narrower view and measure the benefits by dollars and cents alone; or, greater and much more philanthropic yet, if we help as we certainly must do to guard the health of our own race and the safety of every family within our borders: the necessity grows more prominent. Without question the conditions demand a more systematic method of sanitation persistently but rationally applied so that a broad minded public must take notice and support and supplement the efforts toward an ultimate benefit to all although a temporary inconvenience to some.

Our Political Influence.

So long as our government is controlled largely through the influence of political parties, just so long will needed legislation be dependent upon the favorable attitude of an administration in power. Or on the other hand, hampered or annulled by an unfavorable attitude. Our association is in no sense any part of a political party organization nor should it be tempted into any schemes to arbitrarily try to change the honest political views of its members. Our membership will always hold diverse views according to our ways of looking at things and we have no inherent right to dictate, nor any inclination to compel any member to follow other than his own conscientious political conclusions. But it *is* entirely within the province of an organization of this kind to take notice of, and commend a state administration which has given more personal encouragement to the efforts put forth for the live-stock interests of the state than any other in our history. This favorable attitude stands out in bold contrast to that of some former administrations wherein the disposition seemed to be to belittle the veterinary profession, expose the live-stock industry to unnecessary dan-

gers, and through this indifference to humiliate the state in the eyes of our sister Commonwealths. The veterinary profession is to be congratulated that we have an interested Governor, an energetic, active State Board of Live Stock Commissioners, and a qualified broad minded and competent State Veterinarian who is a member with us. All of these evidently are not afraid to take the initiative for the best interests of the whole state.

In this spirit the commendatory resolution was passed at our mid-summer meeting at Galesburg and recent results have caused us to be more sanguine that the foundation which has already been laid for a better condition of things will now mature uninterrupted. We believe that results will justify our trust and make a showing in the history of live-stock and veterinary sanitation in the state commensurate with the importance and advancement of the industry. Progress may seem slow. Criticisms are easy to make and multitudinous. I hope however, and in large part believe, that we as veterinarians will be found level-headed enough to refrain from diminishing our chances by too early and severe criticism of the progress made. Let us be unbiased enough to ask ourselves the question whether or not we have individually given to the State Veterinarian, the State Board, and to the Governor as much assistance and support as they have given to us, as a profession. We will thwart our own aims if we selfishly ask too much for our few hundred veterinarians alone without adequately considering the welfare of the animal husbandry of the whole state. We must have behind our claims the proof of the greatest permanent benefit to the greatest number, either directly or indirectly, of those connected with this state-wide industry. It is the duty of a public servant to consider matters thus broadly. It is obviously our profession, individual and combined duty to work for and uphold law in no narrower or more selfish way than this. Whatever in the end is best for the live-stock interests is beyond question the very thing which at the finish is best for the veterinary practitioner.

Our Veterinary Practice Act.

Our present law regulating veterinary practice has been upon our statutes for more than nine years. While it is evidently not all that the state deserves yet in localities where state's at-

torneys have energetically and conscientiously pushed the prosecution of offenders on evidence furnished by our members, very satisfactory results have followed. Judges of county and circuit courts also seem to generally recognize the necessity and feasibility of the enforcement of such a law. In some counties where the state's official is too anxious to preserve friendship or votes or is otherwise incapable or unworthy of the trust imposed in him the law becomes somewhat of a farce. This gives some ground for discontent and embarrassment, but even where this is true, no qualified practitioner should fail to comply fully and cheerfully with the law as we have it, because the law does not do all that we could hope for, gives no pretext whatever for violating or neglecting any of its provisions. Quietly and tactfully rather the part of the veterinarian should be to help along the education of the public minds until they can see clearly and forcefully their own personal benefit and protection, then the influence will easily come that will make for results to our liking. We need our law amended. Public safety will before long demand it. The law will appeal to popular favor in the last analysis is the one which comes in response to strong public sentiment. With this aroused, the demand does not look like a special favor law for a limited class. Public sentiment and educational influences need right now to be brought up a little stronger. I believe therefore that we can safely leave the matter of amendment of our law to a carefully selected legislative committee who can thoroughly investigate conditions and act so that we may not lose ground at least and take a step forward where the step seems sure.

Turning to another phase of this topic, let me here emphasize the fact that *no law,* however good or how nearly perfect, will make me a success as a practitioner. If after spending my time and money in obtaining a diploma my equipment is not sufficient to compete with the unqualified irresponsible practitioner by hard work and persistent devotion to business, then I am in poor form and in bad grace to claim added protection by law. Our chief asset and strongest objective on this side of the argument is to be found in banding together here men of such strong worth and excellent scientific and practical qualifications as will succeed without the law; as will practice down empericism; and who can and will prove the worth of scientific principles as against demagogism.

State and Municipal Regulations and Civil Service Appointments.

A favorable sign of advancement within our state is seen in the comparatively new order of things which makes it now incumbent upon applicant for a position where the services of a veterinarian are required, for such applicant to be a graduate of a recognized veterinary college. This alone is having a strong tendency toward removing the stain of disrepute as viewed by many of the veterinary and live-stock boards of our neighboring states. It is a distinct step in advance but not looked upon with political favor by that class of practitioners of the emperical school. The co-operation of some cattle and dairy men looking toward the eradication of tuberculosis from their herds is a most favorable sign of the times. With a little more of this sentiment and a sufficient appropriation to develop a working plan an incalculable amount of good can be accomplished. The recent added regulations concerning tuberculous animals is we hope a promise of the sane crusade against this widespread plague amongst herds of cattle and swine. The recent developments for successful immunization against hog cholera and also against tuberculosis are of a most encouraging nature and open wide a fruitful field for the veterinarian, physician and bacteriologist. Encouraging also, we hope, are the passage of municipal meat, dairy and milk inspection laws in various parts of the state. They seem to be of a reassuring type if not all that could be desired. Good live veterinary physicians on these municipal sanitary and inspection boards do and will add much to their efficiency. Already this has been done with excellent results in certain places according to indirect information.

The rules laid down by the Bureau of Animal Industry for the standard of education of applicants for veterinary positions in the department are certainly largely commendable. A government, state or national, cannot maintain or develop a high standard of efficiency in any department with an unscrupulous and inefficient personnel. There must be something by which a standard can be measurably maintained. The day of the veterinary specialist is dawning in the field of this higher and more exacting work of educational research and effective sanitation. The field practitioner, though an undoubted success in his line, might be a dismal failure as a laboratory investigator or scientific instructor and vice versa. Each, alike, can take the neces-

sary course side by side and receive a diploma for the same work done in a recognized veterinary college. The one will find his opportunity in general practice and the other in government work as a specialist or an inspector. If our erstwhile acquaintance, "John Smith," chooses to apply for a responsible position in the government service it should be no hardship for him to take the competitive examination and thereby not only prove that he has the equipment for a special position in a measure; but by this act he supports a law or a rule which safeguards the encroachment of undesirables and elevates the standard of work done by himself and his associates. If "John Smith" or any of us as his brother practitioners are equipped for the work contemplated, then the civil service examination can have no terrors for him or for us. Do I say too much when I declare that if lacking in equipment we have but little if any more right to favor than he who, with energy and push, secures a short course diploma or develops a broad knowledge of the profession untutored, by years of reading, research, and experience? What is quackery if it be not demanding position or recognition on presumption without proof? What is real professionalism if it is not ready to *give* the proof?

Veterinary Education—The State School.

The field for veterinary education is becoming wider and more scientifically practical. The opportunity for experimentation and research is unlimited. Largely it is restricted only by a matter of dollars and cents. The benefit of practical experimental results are is at least state-wide. They cannot well be carried on to any extent by any individual single handed. Private institutions even of a high order cannot be expected to spend heavily on experimental work unless largely endowed. We have a great state institution and we point with pride to the University of Illinois in many or most of its departments. But when we study the history, equipment and growth of the Veterinary Department we find that it always has been and still is seriously wanting in equipment and appropriation. A grand old man, a venerable and highly respected practitioner, has struggled there for years to make even this little showing in the general education of the agricultural student and in semi-private veterinary education. No special appropriation, nor opportunity for valuable experimental work, and but little encouragement from the public, were the incentives he received to spur him on to added

zeal. Few instructors would have been so faithful and there is no word of censure to be written about our respected fellow member. The shame is upon our great state for this long neglect of so important a branch of the agricultural interests. Several states have already led off before us and set a valuable precedent. It is worthy of note that those states which have best improved the veterinary departments of their state universities have obtained better veterinary practice laws. We cannot stay much longer so far in the back bround. Our state and our state university are worthy of a veterinary department that stands in the forefront. A recent press notice pertaining to the co-operation of our agricultural college with that of the University of Wisconsin is an added evidence of plans maturing in recent months for a transformation. But we must be careful that we avoid some palpable errors which others have made. The Governor and his aides, the President of the U. of I., the Dean of the Agricultural College, the packers and allied interests of the Union Stock Yards; have all seen this great need. The live stock producer and the veterinarian will be directly affected by the development and working out of the plan to establish a real veterinary college as a part of the U. of I. Likewise, indirectly the packer and consumer will receive benefit without measure. Certainly no more commendable move could be made. It behooves us to lend all moral support possible toward the realization of this plan. Its development will largely be in proportion to the public sentiment demanding it. I am inclined to believe that this association has been derelict in its duty in not using available means toward the encouragement of such a move long ago. Efforts thus directed would have interested a greater number outside our profession. We may now need to tarry this feature is brought to par before we get needed enactments which now the general public would consider semi-class legislation.

Special and experimental work is much needed by the state. With a properly equipped and adequate teaching staff in a state veterinary school this association could work harmoniously in furnishing data and subjects and specimens from the field. Then a committee on intelligence and education and another on Contagious and Infectious Diseases might well form the connecting link between this body and the college itself. Regardless of individual school, our alma mater, or other affiliations, we should lose no opportunity to put in a good word for such a cause. If there be any avenues open to help elevate our profession and increase its usefulness let us be found to be lifting all together.

We do not need too many schools but we do need a readjustment of our system suitable to the time and conditions. The private schools are to be commended, even praised, for the work they have done and are doing. To them, largely, the credit for making the profession what it is must be given. Certainly they are entitled to and will receive consideration. That they have succeeded so well, maintained a creditable standard through an extended period of depression a few years since, and come forward rapidly again with improvements; increased faculty in numbers and qualifications; extended curricula and lengthened terms; and yet with overflowing class rooms must be a gratification to them. That there is some element of danger in the transformation of these schools by the instructors or the strongest advocates themselves. This association has a right, yes, it has a duty to perform in the matter of educational institutions. It should assist in the maintainance of the highest proficiency consistent with the demands of the day, the urgent needs of the state, and the requirements of the government. I would not stifle college loyalty and college spirit and fraternalism. But when we become practitioners our fellowship should be without limit and not narrowed by the confines of any college walls. As an association all recognized and reputable schools should receive like recognition if our by-laws admit their graduates to membership with us. For the success of the association in its broadest sense, the best of harmony without school or faculty animosity must prevail. I am pleased to believe that this association can be so conducted as to lend its influence to the highest educational aims without alienating any fair minded alumnus or depriving ourselves of the usefulness of any faculty. If it is in good order according to the recommendation of the "College Commission" to the Department of Agriculture that no more than three or four graduates from any one college shall hold a position on the faculty of a particular school, then it is obvious that no school whatever should control or bias the acts of an association of the states' veterinarians. What must be said of such prominent instructors who hold aloof from giving us their help?

We have some need of caution that our state association set a good example along ethical lines. Indeed it has been suggested, (and I believe the idea has merit in it), that were a chair on Ethics established in our veterinary colleges it would tend very favorably to place before our profession something beyond the narrow commercial side of our business. It would add im-

petus to the much needed fraternalism and mutual friendship and effort of not only our city veterinary physicians but our local country practitioners as well. If we want to accomplish something, though we have differences, let us pull together toward proper ethics, better equipment, more scientific research and a higher standard of educated men.

The A. V. M. A. and the Congress on Tuberculosis.

The recent meeting of the A. V. M. A. and The Congress on Tuberculosis are worthy of special mention. Each was a great success and both have left their stamp not only upon literature and science but upon the intelligent practitioner and the general public as well. The authorities who there gave voice to their beliefs based upon a decade or more of careful research will be quoted for years to come. It is pleasing to find that among other good things promised by our program, we are to have some of the echoes of that notable Congress presented here. Illinois was well represented at the American Veterinary Medical Association especially and we are certain that many points of interest can be presented by those who were so fortunate as to be in attendance, as our meeting progresses. The able presentation of various phases of veterinary education and upon the progress of immunization against diseases is alone very attractive and it would certainly seem that no veterinarian's library would be complete without a copy of the proceedings.

The A. V. M. A. for Illinois.

Much good must come from such meetings as these wherever held and it is therefore with the utmost satisfaction that we note the coming of the American Veterinary Medical Association to our own State of Illinois and to our own western metropolis in September of 1909. Even at this hour we can commend the good judgment and acts of our fellow members who secured the meeting for Chicago. It is of no small import to the veterinary educational and sanitary interests of the state to have this great meeting brought here. Commensurate with the importance of this American convention therefore I feel assured that our state association will rise to the occasion nobly and at once take the necessary steps for arrangements and entertainment as a gracious host to an honored guest. I propose the rallying call "Gather at Chicago in 1909" be sounded to every veterinarian of the state. Our state is great; her people are re-

sourceful: and let us prove that her veterinarians are hospitable. A committee of representative veterinarians should be appointed to act in conjunction with a committee of the Chicago Veterinary Society in working out the details of arrangements and perfect the plans for entertainment. Funds will be needed and should be furnished adequate for the occasion either by appropriation or subscription, or both. This is not all,—a special crusade should be made to increase our own membership between now and the mid-summer meeting. All our veterinarians from one end of the state to the other should begin now to plan to "Gather at Chicago" next September and aid in tendering a rousing reception to the visitors, make felt the greatness of Illinois and the Mississippi valley, and, withal, insure this 1909 Chicago convention to be the greatest meeting of veterinarians in history.

MEMBERS' DUTY TO OUR SECRETARY AND OUR ASSOCIATION.

A word might be dropped as to our duty as conscientious, active members of our profession and our association. We see the commercial side of our profession very strongly. Very naturally we measure our success by the financial remuneration that it brings us. We would rather take a good case from a good client than to write, read and defend a paper before our association. I sympathize with this feeling. It has a deep hold upon me and what I say is said in the kindliest feeling but with conviction. The position of Secretary of such an organization as this could be made much easier and fuller of results if better cooperation were promptly given. Upon the Secretary must fall the greater part of the responsibility for the success or failure of our association. The work of securing a program while theoretically resting with others yet, as a matter of fact, devolves largely upon him. He knows that he appeals to busy men when he writes to one of us for a contribution to the program. But as business men we owe him a reply. And as observing professional men, I speak with emphasis when I say that in vastly more instances the answer should go back to our Secretary, "We'll try." I assert with confidence that few of our practitioners have not opportunities which open up in their field for special observations and perhaps specific medication and surgical interference well worthy of record. A successful man will make mental observations from these chances and make deductions even if they be not altogether right. I appeal to your good sense again to

inquire if you are not standing in your own light if you do not attempt to formulate those ideas and strengthen or prove them by inviting honest discussion with honorable co-laborators in likewise fruitful fields. No man ever read a live paper before an association of this kind but that he received even more help from it perhaps than any one man could impart, or any one listener could corroborate from personal experience. Inexcusable as it may seem, I have known competent veterinarians to refrain from joining this association for fear of being asked to read a paper. Others pass up the Secretary's invitation with the thought that there is always plenty on the program anyhow. But the Secretary only knows how much work it takes to get it there. Others simply know that " they are the busiest men on earth " and consign the Secretary's entreaty to the waste basket at once. Gentlemen, did you ever stop to think what an intensely practical meeting we would have if all our papers were prepared by men who have nothing to do? Men who have achieved anything have been and are busy men. When there was nothing else to do they kept busy investigating and developing. With the vast fields for investigation we have no excuse for not settling a few things in our own minds at least. The undoubted importance of parasites in the animal body and the role they play in the development and complications if not the cause of many diseases in the alimentary tract, the blood, or in the animal tissues; the growing importance of protoplasm in its relation to the development or even to the existence of pathological conditions; and endless array of ptomains with their oftentimes disastrous and peculiar effects: will alone cause the progressive veterinarian to be alert and somewhat definite in his conclusions. I think there is ample reason to expect that he shall also become reminiscent and contributory.

Dangers from Contagious Diseases.

No unusual outbreak of diseases of a contagious character have prevailed within our state during the past year. Little by little added precautions are being taken to prevent the coming of such dangerous diseases within our borders. However, there are contagious affections which are more or less always with us, of an aggravating and perplexing nature, which call for the alertness of every veterinarian and the vigilance of the state authorities.

The lesson taught by the present serious outbreak of "foot-and mouth disease" in Pennsylvania, New York and at certain points in some other states, is that of eternal vigilance on the part of every federal and state inspector or sanitarian, as well as that of the private veterinary physician and the stock raiser himself. The heavy cost and the loss in stamping out such an outbreak would pay for vigilant preventive measures for years to come. At whatever cost, it must be stamped out.

Our Growth and Recognition.

In conclusion I only wish to add that these prosperous years for the veterinarian should awaken a new zeal for our state association. The past year has been one of satisfactory results although no apparently great opportunity has arisen for special effort on the part of the officers and committees. The added membership is a source of gratification. It is a good healthy growth but individual and collective effort will bring in a larger proportion of eligibles. We earnestly invite all who are present and not members to become so. But we would not have you understand in any sense that you are not welcome as visitors, and as such you are free to join in the discussion of papers and general topics.

I have had no thought in this address of extolling the achievements of the veterinarian in the past perhaps as much as might be expected. They have been given due importance at each succeeding meeting. I have no eloquent words to depict our profession as having done any more than our full duty in the past. If we are not a helper we have no right to existence. I do not, however, belittle the accomplishments of our calling nor trample on its achievements through hardship and hazard and the sacrifice of life. I take off my hat to the man who will stay by a complicated, interesting, though hopeless case and watch it through the long hours of the night, and do his best while he has the case even though there may not be a visible dollar of compensation in it. I honor as I would a martyr the man who courageously works in his laboratory over virulent germs, in order that scientific discovery may profit by his labors. I would speak the word of commendation for our greater lights in our profession or any other wherein the individual's life work is directed toward the amelioration of suffering either in animal or man,—or through the study and knowledge of the one, to yield benefit to the other. While I admit that what the veterinarian

has done has often been poorly appreciated and supported by the public, yet it has always been so and we have no time to worry over loss of recognition or respect withheld. We have no inclination to stop even that older profession in medicine and *the one* which should be the very first to realize the direct importance of our profession, is often one of the gravest offenders. If you as an employer lose confidence in me, rightly or wrongly, as an employee, I cannot inspire even a resemblance of confidence in you by appealing to force or to law or to abuse. Before you will really believe that I am worthy I will have to prove it twice over. Little by little I can inspire trust as I show my determination. The veterinary profession has within the memory of some of our older clients come up from a rather low estate. To the personal knowledge of many in the profession, the "coming up" has been by long strides. We are proud of the advancement made and glad for the brilliant minds who are planting their thoughts and bestowing their energies so capably and so fearlessly. We see more and more recognition given to the worthy and untiring exponents of our branch of the medical profession. Upon *our merits* the future of the veterinary profession will be judged by the public, and quackery, fakery and the remnants of superstition will be banished in proportion.

The address was highly complimented by Jonathan Periam who is now in his 86th year. Mr. Periam has been editor of the *Prairie Farmer* for possibly the last half century. He has been before the veterinary classes in Chicago for the past twenty-five years as an instructor in hygiene and breeding. He stated that the veterinarian must depend upon his knowledge in making a diagnosis while the physician of human medicine could depend a great deal upon his patient.

The noon hour having arrived the meeting was adjourned for lunch.

Reconvened at 1:30 p. m. Dr. Duncan McKenzie was called upon to read his paper entitled "Glanders." The paper was short but covered much interesting ground. He does not think that the Agglutination test is more reliable than the Mallein test.

The paper brought forth much discussion pro and con but no argument was produced to satisfactorily disprove the doctor's assertion. He stated that some seemed to think that Mallein was a curative agent in some cases on account of the animal failing to react after a number of injections. Mr. Periam

would advise that all animals that react to the Mallein test should be destroyed for it had been proven that animals that were thought to have been cured were still competent to distribute the disease to other animals. Dr. Tiffany stated that some horses reacted every sixty days over a period of eight months and then failed to react. Dr. McKenzie and Dr. Tiffany each advised that no animal should be tested when abnormal or irregular temperature is present, but all other exposed animals should be tested. Dr. Glendenning, Dr. Quitman, Dr. Way took part in the discussion. Dr. Way was associated with Dr. Berns, of Brooklyn, New York, who was the original investigator of the Agglutination test which was applied to about three thousand head of horses in all stages of the disease. Dr. Way considers the method quite accurate. Dr. S. S. Stewart, President of the Kansas City Veterinary College, made a few very interesting remarks upon the subject.

It was then announced that P. S. Haner, Chairman of the State Board of Live Stock Commissioners, Mr. A. W. Sale, H. J. Beer, also members of the board, were present in the room. Mr. Haner was called to address the association. His remarks were highly appreciated by every veterinarian present. He said that he was a farmer and stock raiser and that he had the interests of the stock raiser at heart, that the Board is making every effort in its power to enhance the stock raising industry of our state and that it is the intention of the Governor and the Board to urge upon the Legislature a law that would protect the stock raisers and also for the prevention and eradication of contagious diseases among animals. He also urges that quarantine laws be enacted whereby we may be able to quarantine against other states to prevent the shipping of animals into our state unless they are accompanied by a certificate that they are free from any contagious disease. Every one joined in a hearty applaud to Mr. Haner's address.

Dr. James M. Wright, State Veterinarian, was called to the floor and addressed the assembly upon the subject "Hog Cholera." He described the success of the Government serums. The method has proven to be very successful when the serums are carefully and properly prepared. He recommended that special laboratories be established by the state for the manufacture of the serum. He advised that the serums be administered only by competent veterinarians. The stock raising industry is a large part of the wealth of our great state and the stock raiser

should be grateful that we have a State Board of Live Stock Commissioners and a State Veterinarian who are so interested in their welfare.

Dr. Geo. B. Jones' paper, " Pleurisy or Pleuritis," was very interesting and thoroughly discussed. The doctor is a firm advocate of paracentesis thoracis as soon as hydrothorax is known to be present. He exhibited a specimen of fluid drawn from the lung cavity containing considerable pus. He reported complete recovery of the animal.

Dr. Joseph Hughes in a few eloquent words presented the name of Dr. D. Arthur Hughes to become an honorary member of the Association. Dr. D. Arthur Hughes was elected by an unanimous vote.

Dr. D. Arthur Hughes then read his paper upon the subjest, " Dr. Robert Koch and His Critics at the International Congress on Tuberculosis, Washington, D. C." The paper was most interesting and was handled in a manner that probably no one could surpass. Every one present gave the closest attention to every detail of the Doctor's paper. Comment is unnecessary for the veterinarians know the ability of Dr. Hughes.

Meeting adjourned to meet in the banquet room at 8 o'clock at the Lexington Hotel.

At 8 o'clock the banqueters assembled around the banquet tables seventy partaking of the very elaborate menu. Dr. James Robertson, of Chicago, acted as toastmaster. He is known to be one of those very pleasing speakers and a jolly good fellow which meant that a very pleasant evening was in store for those assembled. The usual customary responses to toasts were done away with and various members were called upon for extemporaneous speeches.

First Dr. S. S. Stewart made a few very pleasing remarks eulogizing the veterinary profession. He was one of the original organizers of the Iowa Veterinary Association. He stated that he had met in many banquet halls of other kinds of professions and occupations but none so orderly as those of the veterinary profession.

Dr. Way, of Cornell University, did justice to the profession in a few well chosen remarks.

Dr. Brownlee, President of the Mississippi Valley Association, created considerable laughter which he is always capable or doing.

He was followed by pleasant speeches from Drs. Welch, Martin, Nattress, Wright, C. A. White, Glendenning, L. A. Merillat, Chamberlain, A. H. Baker, J. F. Ryan, Walker, and last but not least, S. S. Baker.

The banquet was voted a success and every one agreed that the evening had been pleasantly spent.

DECEMBER 2, 1908.

Meeting called to order by the President, Dr. Mills.

Dr. J. E. Gillispie read a paper on Fistula, and cited a peculiar case of fistula in the flank of a cow.

Dr. A. H. Baker presented a report from Dr. Alexander, of the Wisconsin Agricultural College, a case of "Johnes" disease in the cow. He also presented a pathological specimen taken from the intestine of a cow that had died with the disease. Every one present appreciated the value of this report and on account of the specimen being presented it made it of still more value familiarizing everyone who saw it with the conditions produced by the disease and where to look for the trouble in post mortem examinations. No treatment was suggested and the disease is not supposed to be contagious.

Dr. L. A. Merillat's subject was "A Few Suggestions in Surgery." He stated that no one could be a good surgeon unless he possessed inventive genius and practical ability. In all cases of surgery whether minor or major that strict attention should be given to every detail in the preparation for all operations; that strict and careful observance of all stages of the operation should be made. Plenty of all essential equipment should be possessed by the surgeon. He should have a hospital. Shun barn yard operations and educate your clients to bring their cases to your hospital. Your successes will be ten fold better and your clients will be better pleased. Caution of diagnosis should be more careful than in medical cases. The doctor's remarks made an impression upon all those present that will be of much value to them.

Dr. J. J. Miller presented a paper on "Rabies" which created animated discussion on account of the doctor seeming to coincide with the belief that some others have expressed that there is no such disease as rabies. Drs. S. S. Stewart, L. A. Merillat, Worms, A. H. Baker, S. S. Baker, Martin and White expressed themselves as believing such a disease does exist and they do not see where any argument or real facts can be pro-

duced to prove that it does not exist. Dr. Dinwiddie, of the Agricultural College of Arkansas, made a few remarks coinciding somewhat with the essayist. Dr. Miller does not think that the negri bodies are of very great diagnostic value. He has found negri bodies in dogs that had no symptoms of rabies. Dr. Way believes that the negri bodies are of much diagnostic value.

Dr. Morgan not being present, his paper "Hemorrhagic Septicemia" was read by the President, Dr. Mills. The paper described the disease quite fully and interesting remarks were made upon the disease by Drs. S. S. Stewart, Brownlee, and Wright gave the diagnostic difference between it and anthrax.

Dr. Stewart made a few remarks upon Dr. Merillat's paper on Surgery. He stated that antiseptics were not used in human surgery as they used to be after operations, all antiseptic precautions being taken before the operation and sterilized water only after. He cited a case of appendicitis in the human where pus was found in the abdominal cavity and only sterilized water used after the operation, the patient making a nice recovery.

Dr. Baker moved, seconded by Dr. Wilson, to suspend the rules and proceed to the election of officers. Dr. A. H. Baker nominated Dr. N. I. Stringer for President. No other nominations being made Dr. Stringer was elected by acclamation.

Dr. C. G. Glendenning nominated by Dr. Walker for Vice-President. Dr. Glendenning was elected by acclamation.

Dr. J. H. Crawford was nominated by Dr. Welch for Secretary. Elected by acclamation.

Dr. Merillat nominated the present incumbent, Dr. Walker, for Treasurer. Elected by acclamation.

Board of Censors—Nominations, Dr. W. H. McEvers, Dr. J. F. Gillispie, Dr. Fred W. Godsall, Dr. H. D. Chamberlain. The ballot was spread. Drs. McEvers, Gillispie, Godsall receiving the highest number of votes were declared elected.

The President then appointed Dr. S. S. Baker, Dr. Smith, Dr. Martin Auditing Committee.

The following committees were then appointed by the President:

Committee on Program—Ex-officio, Dr. N. I. Stringer, Paxton; ex-officio, Dr. C. G. Glendenning, Clinton; ex-officio, Dr. J. H. Crawford, Harvard; Dr. A. W. Smith, Farmer City; Dr. Geo. P. Frost, 1340 E. Ravenswood Park, Chicago.

Committee on Arrangements—Ex-officio, Dr. C. G. Glendenning, Clinton; Dr. James Robertson, 334 E. 44th St., Chicago; Dr. W. H. Welch, Lexington.

Committee on Legislation—Dr. W. J. Martin, Kankakee; Dr. L. A. Merillat, 1827 Wabash Ave., Chicago; Dr. J. T. Nattress, Delavan.

Press Committee—Dr. C. A. White, 78 E. 26th St., Chicago; Dr. J. G. Blum, Bloomington; Dr. F. H. Ames, Mt. Sterling.

Moved by Dr. Welch that the next semi-annual meeting be held in Bloomington. Motion carried.

Moved and seconded that a vote of thanks be extended to the retiring officers. Motion carried.

Moved that a vote of thanks be extended to the hotel for their courteous treatment. Motion carried.

A discussion relative to the various ways of raising money to entertain the A. V. M. A. in September was entered into freely. Moved and seconded that an executive committee be appointed to act in conjunction with a similar committee to be appointed by the Chicago Veterinary Society for the purpose of raising funds and taking charge of all the details pertaining to the entertainment of the A. V. M. A. Motion carried.

Moved by Dr. Merillat, seconded by Dr. Walker, that the committee be composed of all the elective officers of the I. S. V. M. A. and the following named past Presidents: Drs. C. C. Mills, W. H. Welch, J. T. Nattress, S. S. Baker, M. Wilson, A. H. Baker, Jno. Ryan, H. A. Presler.

Moved and seconded that the Secretary be instructed to correspond with Dr. Lyman, Secretary of the A. V. M. A., and procure a sample page of the Secretary's book devised by him and to procure a book like it if possible.

Adjourned to meet in Bloomington at the call of the President.

N. I. STRINGER, Secretary.

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the above association was held at Redmen's Hall, No. 240 Golden Gate Avenue, San Francisco, Cal., on December 9, 1908.

The meeting was called to order by the President, Dr. David F. Fox, of Sacramento.

Owing to the absence of the Secretary, Dr. Haring, the President appointed Dr. J. J. Hogarty to act as Secretary pro tem.

Roll call showed the presence of seventeen members and two visitors.

The minutes of the previous meeting were read and approved.

The Secretary's annual report was submitted and upon motion it was accepted and ordered placed on file.

The Treasurer, Dr. Betzold, submitted his report showing a balance in the treasury of $63.65. The report was accepted and ordered placed on file.

Dr. Otis A. Longley, of Fresno, Chairman of the Committee on Judiciary and Prosecutions, submitted a report of the work done by his committee during the past year. In this connection Mr. Henry Hawson, attorney for the Prosecuting Committee, gave a detailed account of the legal steps taken to enforce the law regulating the practice of Veterinary Medicine in the State of California. He also explained the grounds upon which Judge Ogden had declared the law unconstitutional. At the close of Mr. Hawson's remarks the President complimented him very highly for the work he had done and the great interest he had taken in the Association's legal affairs.

The President then declared a short recess to permit the Prosecuting Committee to confer with Mr. Hawson regarding proposed amendments to the law, also to allow the Secretary to receive dues from members.

Upon reconvening the President called for a report from the Prosecuting Committee which was submitted by Mr. Hawson who submitted a report showing the necessity of eliminating certain objectionable features in the present law. He also submitted two amendments and suggested that the State Legislature be requested to pass same.

Upon motion duly seconded and carried the Prosecuting and Judiciary Committee was authorized and instructed to endeavor to have the said amendments passed by the Legislature.

Upon motion duly seconded and carried the report of the Prosecution and Judiciary Committee was accepted. Ordered placed on file and the Committee given further time.

Dr. P. H. Browning, chairman of the Committee appointed to draft a law for the registration of stallions, reported that very little had been done in that direction. Considerable discussion

followed regarding the necessity of registering stallions and the prevalence of venereal diseases among such animals in several sections of the state; following which the Committee was upon motion duly seconded and carried given further time.

An application for membership was read from A. John F. Bateman, of San Francisco. The same was referred to the Board of Examiners.

Nominations and election of officers for the ensuing year resulted as follows:

President—Dr. David F. Fox, Sacramento.
Vice-President—Dr. Otis A. Longley, Fresno.
Secretary—Dr. J. J. Hogarty, Oakland.
Treasurer—Dr. W. F. Betzold, Selma.
Board of Examiners—Drs. H. A. Spencer, Edw. J. Creely and David F. Fox.

The President reappointed the following as members of the Committee on Prosecution and Judiciary: Drs. Longley, Donnely, Danielson, Megowan and Healey.

Dr. R. A. Archibald, of Oakland, gave an interesting report of his trip East giving in detail an account of the annual meeting of the American Veterinary Medical Association held in Philadelphia, the annual meeting of the Inter-State Association of Live Stock Sanitary Boards, held in Washington, D. C., and the International Congress on Tuberculosis, also held in Washington, D. C., which was greatly appreciated.

The subject matter of establishing municipal pasteurizing plants was brought up by Dr. Archibald who gave reasons showing that such institutions were inadvisable and dangerous in the extreme. The subject was discussed at some length by Drs. Megowan and Creely.

Dr. J. J. Hogarty, of Oakland, reported a surgical case encountered in his practice, that of a supernumerary ovary and fallopian tube in a bitch. Ovariectomy had been performed on the bitch when two ovaries and two fallopian tubes were removed. Later on the bitch became pregnant and gave birth to one pup which was followed by a prolapse of the uterus. A second operation was decided upon and a third ovary and fallopian tube were discovered and were removed together with the uterus. The bitch made a nice recovery. The speaker submitted the uterus and third fallopian tube and ovary and called attention to the two cicatrices where two fallopian tubes had been removed at the time of the original operation. He also stated that it was his practice in performing ovariectomy on

bitches to remove with the ovaries all the fallopian tubes and a small portion of the uterus above the bifurcation.

A lengthy discussion followed Dr. Hogarty's report in which nearly all present joined. The use of ether as an anaesthetic particularly in feline operations was brought up by Dr. Oscar J. Kron and Dr. Sorenson who claimed that cats took this anaesthetic very nicely. Drs. Sorenson, Fox and others seem to think that the operation of ovariectomy on cats where ether was used was as simple as the same operation on bitches. The only trouble so far as cats were concerned was getting the operation wound to heal.

Dr. Kron stated that his experience with the operation on cats was that it was almost sure death to operate in the East during the winter time. But no trouble was experienced during the warmer months.

Under the head of New Business Dr. Archibald moved that the Secretary be instructed to notify all members in arrears for dues that the same must be paid within six months or their names would be dropped from the roll of membership. The motion was duly seconded and carried.

Dr. C. L. Megowan made the claim that the Association was indebted to him to the amount of sixteen dollars. This was due to the fact that while Secretary of the Association some years ago he paid bills contracted by the Association. Upon motion duly seconded and carried Dr. Megowan was reimbursed by being credited with paying dues to the amount of $16.00.

Upon motion duly seconded and carried the President was instructed to convey to Drs. Hogarty and Archibald the thanks of the Association for the entertainment furnished by them.

The President appointed the following as assayists for the next meeting: Drs. Archibald, Keane and Betzold.

Dr. Archibald moved that inasmuch as Dr. Betzold had failed to read a paper in the past notwithstanding the fact that his name had appeared on programs on numerous occasions and the further fact that the stallions in his vicinity were affected with a venereal disease simulating syphilis that he be requested to duly prepare a paper on this subject for next meeting. The motion was duly seconded and carried.

The President appointed Drs. Creely, Keane and Archibald a committee to arrange a program for the next meeting. After the transacting of routine business the meeting adjourned to meet at San Francisco on Wednesday, March 10, 1909.

J. J. Hogarty, Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The twenty-fifth annual meeting of the association was held at the Trenton House, Trenton, on Thursday, January 14, 1909.

MEMBERS PRESENT.

The meeting was called to order at 10 A. M. President John B. Hopper occupied the chair and the following members answered to their names: Budd, Carter (R. W.), Christy, Conover, Glennon, Gray, Harker, Hopper (John B.), Horner, Hurley, King, Lindsay, Loblein, Lockwood, Lowe (J. Payne), Lowe (Wm. Herbert), Magill, Mathews (John P.), McDonough, Morehouse, Paulin, Read, Rogers (Thos. B.), Rowe, Smith (Thos. E.), Turner, Vander Roest. A number of visitors were also in attendance.

MINUTES APPROVED.

The minutes of the semi-annual meeting held at Newark, July 9-10 last, were read and approved.

PRESIDENT'S ADDRESS.

The President's address made it clear to his auditors that there existed in New Jersey, as there did in a number of other states, an urgent necessity for the establishment of an efficient veterinary sanitary service conducted along modern scientific lines, in harmony with the federal laws. He pictured shocking slaughter house conditions as they actually existed in many places throughout the state and said that the only remedy was the licensing of abattoirs and the inauguration of an adequate state meat inspection service. The service should be under competent veterinary direction as it is at Washington. He explained the scope and limitations of the federal meat inspection system conducted by the Bureau of Animal Industry, U. S. Department of Agriculture.

The President stated that the officers of this association had taken the initiative in a movement to bring about the desired result in New Jersey. A conference between President E. B. Voorhees and Secretary Franklin Dye of the State Board of Agriculture and of the Commission on Tuberculosis in Animals on the one hand and of Dr. Bruce S. Keator, Secretary and Executive Officer of the State Board of Health, on the other hand,

together with Senator Gaunt, Master of the State Grange, and the representatives of our association had met at the State House in conference a few days since with the object in view of arriving at some sort of an agreement acceptable to all concerned whereby the best interests of the people of the state would be conserved. The President was not in a position at this time to state what the ultimate result of the conference would be, but he earnestly hoped that an agreement might be reached, for in union there is strength. He thought that if the people knew the real conditions and the consequent economic loss and grave danger to the human family by reason of lack of an efficient veterinary sanitary service that the requisite legislation would be forthcoming without delay and that ample appropriations would be made by the Legislature to accomplish the best results.

NEW MEMBERS ELECTED.

Edward L. Baldwin, D.V.S., 65 Avon place, Newark, and Henry J. Glennon, M.D.C., 109 Plane street, Newark, were proposed for membership. Both gentlemen had been duly licensed by the State Board of Veterinary Medical Examiners to practice in New Jersey. The applications were referred to the Executive Committee who reported favorably on both applications and the candidates were unanimously elected to membership.

REPORTS OF DELEGATES AND COMMITTEES.

Drs. Rowe and Loblein, delegates to the International Congress on Tuberculosis recently held at Washington, D. C., gave a comprehensive report of such features of the Congress of most interest to veterinarians.

Dr. Rogers, one of the delegates to the 45th annual meeting of the American Veterinary Medical Association at Philadelphia, told in an interesting manner of this great meeting.

Dr. Budd, a member of the Live Stock Commission, gave a graphic account of his trip to Europe and the purchase of Percheron and Clydesdale stallions for the State of New Jersey.

The Finance Committee reported that they had examined the books of the Secretary and Treasurer and had found them correct.

SECRETARY'S REPORT.

The Secretary presented his annual report reviewing the business of the association for the past year and offered certain recommendations for the advancement of the profession and the wel-

fare of the association. It was recommended that the 25th anniversary of the association be celebrated in a suitable manner at the semi-annual meeting next July.

The financial statement of the Secretary showed that he had on deposit in the bank at the last annual meeting $110.75 and that his receipts for dues during the past year amounted to $270.50, making a total of $381.25. He had paid over to the Treasurer $300, leaving in bank at opening of meeting $81.25.

The Secretary's list of delinquents for the year numbered fourteen, owing the association $154. The association lost two members by death, Dr. A. T. Sellers, of Camden, Vice-President, who died April 3, 1908, and Dr. Geo. O. Forsyth, of Pemberton, who died December 16, 1908.

TREASURER'S REPORT.

The Treasurer's annual report showed a balance of $445.41 at time of last audit. $351.04 have been received by him during the year, making a total of $796.45. The disbursements made during the year amount to $592.23, leaving a balance on deposit in the bank of $204.22.

ELECTION OF OFFICERS.

The election of officers resulted as follows:
Dr. John B. Hopper, President, Ridgewood.
Dr. Thos. B. Rogers, 1st Vice-President, Woodbury.
Dr. Geo. F. Harker, 2d Vice-President, Trenton.
Dr. Thos. E. Smith, Treasurer, Jersey City.
Dr. Wm. Herbert Lowe, Secretary, Paterson.

READING OF PAPERS.

Dr. James McDonough read a paper on "The Injurious Effects of Three Calked Shoes Upon the Hock Joints of Horses" * which provoked an animated discussion on horseshoeing. A resolution was adopted providing for the appointment of a committee of three on the McDonough Horse Shoe. The President named as such committee Drs. McDonough, Loblein and Lindsay. The committee was empowered to spend a sum not to exceed $50.

COMMITTEE ON NECROLOGY.

The President appointed Drs. Magill, Turner and Horner a committee to draft suitable obituary resolutions on the death of Dr. Geo. O. Forsyth.

* Published elsewhere in this number of the REVIEW.

ANNIVERSARY MEETING.

The association decided to celebrate the 25th anniversary of its organization in an appropriate manner at the semi-annual meeting, July 14-15, at Atlantic City. Upon motion, meeting adjourned.

WM. HERBERT LOWE, *Secretary.*

GEORGIA STATE VETERINARY ASSOCIATION.

The third annual winter meeting of this association convened in the Kimball House, Atlanta, Ga., at 7:30 p. m., December 22, 1908, with 12 members present, Dr. P. F. Bahnsen officiating as President and C. L. Willoughby as Secretary. Minutes of the last meeting were read, and the Executive Committee reported a favorable recommendation on the application for membership from Dr. L. L. Cheney, of Augusta, Ga., V. M. D., Univ. of Pa. 1899. Dr. Cheney was elected an active member, making the twentieth member in the two years of association work. The Publication Committee reported printing copies of new constitution and by-laws, with history of the association, and full list of members to date. The Finance Committee reported the accounts of the Treasurer to be correct and in good order, and a balance of $45 on hand.

On taking up the literary program, the first paper was by Dr. W. E. Carnes, of Atlanta, on Dumb Rabies and Its Associates. Dr. Carnes related a case of diphtheretic black tongue in a dog which was examined by the Pasteur Institute, and Negri bodies found in the brain, and a rabbit inoculated with specimen died in fifteen days. The question was raised by Dr. Carnes whether all cases of similar black tongue may be a form of dumb rabies, and if so, whether it was likely to constitute a serious menace to human life. The matter was earnestly argued pro and con by the author and Drs. Anderson and Oliphant, and Drs. Jago and Jolly, resulting in bringing out some very helpful experiences. It was decided, in view of the recent agitation in Georgia on the matter of rabies, and the beginning of preventive treatment by the State Board of Health, that the Association could well afford to bend a large share of its energies during the coming year to this one problem. The Committee on

Diseases was urgently requested to give special attention to this subject during the year, and make inoculation tests, in cooperation with the proper authorities, to determine more facts.

Dr. C. R. Jolly, of Atlanta, gave a talk on the Examination of Horses for Soundness, and Dr. H. J. Schwartz, of Atlanta, read an interesting paper on the methods of treating large contused wounds.

Under the head of election of officers, the following were unanimously elected: Dr. W. E. Carnes, of Atlanta, who has been for two years Vice-President of the Association, was elected President.

Dr. J. H. Oliphant, of Augusta, was elected Vice-President.

Dr. Peter R. Bahnsen, of Americus, the retiring President, was elected as Secretary and Treasurer.

Resolution was unanimously adopted giving a vote of thanks to the retiring Secretary, Prof. C. L. Willoughby (who insisted on relinquishing the work on account of other duties) for the aid given in starting the Association and helping through the first two years of difficult work.

Motion was carried that Prof. Willoughby be reimbursed for traveling expenses attending meetings, and that the future traveling expenses of the new Secretary be paid from the Treasury.

The newly elected President, Dr. W. E. Carnes, now took the chair. A spirited discussion ensued concerning the date for the next annual meeting, November 16 and 17, 1909, being finally and mutually agreed upon. Dr. Jago suggested his home city, Athens, as the next Mecca for the Georgia veterinarians. Dr. Schwartz seconding his motion. Macon had been suggested, but withdrew from the race, and Athens was selected by unanimous vote.

President Carnes then announced the appointment of the following Committees:

Executive Committee—The Officers; Dr. W. A. Scott, Columbus, and Dr. C. R. Jolly, Atlanta.

Program and Publication Committee—The Secretary, Chairman; Dr. T. E. Jago, Athens, and Dr. L. L. Cheney, Augusta.

Committee on Diseases—Dr. H. J. Schwartz, Chairman, Atlanta; Dr. H. G. Carnes, Atlanta, and Dr. John R. Anderson, Macon.

Committee on Legislation—Dr. P. F. Bahnsen, Chairman, Americus; Dr. M. A. Morris, Savannah, and Dr. H. G. Carnes, Atlanta.

Finance Committee—Dr. J. R. Miller, Chairman, Gainesville; Dr. E. L. Fryer, Jr., Blakely, and Dr. A. C. Seacord, Atlanta.

Upon which the meeting formally adjourned.

The Veterinary Examining Board.

The day of the Association meeting and the day following were marked also by the first session of the new State Board of Veterinary Examiners, provided for by the Legislature in August, 1908. The Board formulated rules for its own government, passed upon some 20 applications for license to practice in the state, from graduates of approved veterinary colleges, and 7 or 8 applications coming under the provision of having practiced in the state for three previous years; and also examined two applicants in the subjects required by law. The Examining Board will publish in a short time a full report of its rules and proceedings.

C. L. Willoughby,
Ex-Secy., Ga. State Vety. Assn.

ONTARIO VETERINARY ASSOCIATION.

The annual meeting of the above association was held at the Ontario Veterinary College, Toronto, Canada, on Wednesday, December 23, 1908.

The President, Dr. O. H. Duncombe, V. S., was in the chair. After a few introductory remarks the Secretary, Treasurer and Auditor's reports were read and adopted.

The Secretary reported that bills had been brought before the Provincial Legislature to grant the title Veterinary Surgeon to unqualified men; and that several more such bills were contemplated, with the same object in view. In consequence of which a great deal of trouble and expense was incurred by interviewing members of the Legislature, and issuing circulars to graduates; also in getting legal assistance to oppose such preposterous legislation, with the result that the last application of this nature was so effectually quashed that it was believed it would completely discourage any more unqualified men from applying.

The following new members were them proposed and accepted: R. A. Byers, V. S., Woodville; J. M. Rice, V. S., Bobcaygeon; R. Riddle, V. S., Norwich; H. H. Ross, V. S., Burford; I. Christian, V. S. Drayton; H. A. Cotten, V. S. Milton.

Dr. Mole brought forward a motion that a committee be appointed in relation to endeavoring to get better legal protection for our profession, and a discussion ensued in which many members participated.

Dr. W. Cowan and others spoke against making any direct appeal to the Government just at the present time when important changes recently inaugurated in the Ontario Veterinary College have only just taken place.

Dr. C. E. Elliott, V. S., in speaking on this matter said that he thought it would be impossible to get protection for the Veterinary profession in the Province of Ontario at the present time similar to that granted some years ago to the practitioners of human medicine in this Province.

The election of officers then took place with the following results:

Honorary President—Dr. A. Smith, F. R. C. V. S.

President—Dr. Hutton.

First Vice-President—Dr. Brind.

Second Vice-President—Dr. Mole.

Secretary and Treasurer—Dr. C. Heath Sweetapple.

Directors—Drs. W. J. Wilson, C. Elliott, G. L. Robson, F. H. Hurd, W. Steele, T. H. Lloyd, R. A. Milne, G. W. Coulter.

Auditors—Drs. J. H. Reid, C. Elliott.

Representatives to the Canadian National Exhibit--

Representatives to Western Fair, London—Drs. O'Neil and W. J. Wilson.

Upon the invitation of Dr. Andrew Smith the meeting adjourned for luncheon.

Meeting opened after luncheon, the President-elect, Dr. Hutton, taking the chair. He opened the meeting with a few well chosen remarks.

Dr. Rice, V. S., of Bobcaygeon, read an interesting paper on Strangles, and considerable discussion ensued in which many members participated.

Dr. Grange, the new President of the Ontario Veterinary College, gave a short and interesting report on the changes in the college recently inaugurated.

He explained that the course was now extended to three college years of six months in each year. He also mentioned the new subjects included in the course and the proficiency of those on the teaching staff in charge of them.

Meeting adjourned.

C. HEATH SWEETAPPLE,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular meeting was held at the New York-American Veterinary College, 141 West 54th Street, New York City, on Wednesday evening, January 6, 1909, with the President, Dr. F. C. Grenside, in the chair.

The minutes of the last meeting were read and approved. There were 33 members and visitors present.

The first paper on the program was a case report on "Embolism of the External Iliac Arteries in a Horse," by Dr. R. W. McCully. The subject, a saddle horse, was returned to the stable after short exercise very lame in the near hind leg. The animal only touching the toe of the affected leg to the ground. The lameness disappeared within a few days, but reappeared on exercise. On one occasion the lameness shifted from the left leg to the right, and was doubtless due to the floating clot being dislodged and forced into the artery of the right leg. The horse being unserviceable on account of the intermittent attacks of lameness was finally lost sight of through the action of the owner disposing of the animal by sale at one of the auction marts, where the animal went sound long enough to consummate a sale.

Dr. W. Reid Blair presented a case-report on Aneurism and Thrombosis with rupture of the left internal artery in a zebra. Dr. Blair gave the clinical symptoms observed, as well as the post-mortem findings. The Aneurism was not of parasitic origin, and the mesenteric arteries were apparently normal. Careful examination of the caecum and large intestines failed to reveal the presence of *Strongylus armatus*, the parasite so frequently found in connection with aneurisms of the mesenteric arteries.

Dr. C. J. Marshall, of Philadelphia, presented a paper on "Hereditary Unsoundness in the Horse." Dr. Marshall explained that the reason for bringing this subject forward was due to his endeavors to compile a list of diseases unquestionably transmitted through breeding. A recent stallion service law enacted in Pennsylvania made it imperative that such a list be compiled.

The Doctor's paper showed the result of a great deal of thought and research, and was most exhaustive, and his views on the subject were heartily endorsed by the members present.

A most interesting discussion followed the reading of this paper, much of this centering about the subject of *side-bones* or ossification of the lateral cartilages. There seemed to be a decided difference of opinion as to whether side-bones were of importance or not. Some of the members, whose practice dealt with the heavy draft horse, held the view that very little importance should be attached to them as they rarely gave any trouble, while others were equally positive that the ossification of the lateral cartilages seriously interfered with the proper physiological functions of the foot, and a source of much lameness, especially among city animals. The essayist took the latter view of the subject, and on a vote of those present the majority supported this view. Among those contributing to the discussion were Drs. Burns, Gill, Magee, McCully, Mangan, Cochran, Robertson and others.

President Grenside also contributed some interesting remarks on what he considered unsoundness in a breeding stallion.

The President announced that at our February meeting, Capt. A. H. Waddell, Editor of *Bit and Spur,* would address us on the subject of the Arab Horse.

Capt. Waddell was formerly a veterinarian in British army service, and is an authority on the Arab horse. An interesting address is assured.

W. Reid Blair, Secretary.

COLORADO VETERINARY MEDICAL ASSOCIATION.

This Association convened in annual session January 2, 1909, at Denver, Colo.

The meeting was well attended and much spirit was shown by all, and after adjournment a pleasant evening was spent at the annual banquet.

The most important business was the reading of the report of the legislative committee.

The committee presented a bill to be presented to the incoming Legislature for the approval of the Association which was carefully read and indorsed by all present.

This bill, if it becomes a law, and we sincerely hope it will, will be one of the best in the United States.

The outlook before the introduction of this bill is very encouraging.

The following officers were unanimously elected for the ensuing year:

President—Robt. H. Bird, Greeley.

Vice-President—E. J. Foreman, Trinidad.

Secretary and Treasurer—M. J. Woodliffe, Denver.

Board of Directors—Drs. Geo. H. Dickey, Colorado Springs; F. W. Culver, Longmont; A. B. McCapes, Boulder, and Mark White, Denver.

Dr. Knapp, of the Fort Collins Veterinary College, gave a very interesting report on some cases of spinal meningitis or forage poisoning that he had investigated.

Drs. Lamb, Culver and Glover reported several cases of contagious Necrotic Stomatitis, and Ulcerated Stomatitis in Hogs and Sheep.

The report of the Committee on Rules and By-laws was laid on the table until the June meeting.

The following new members were elected: Drs. H. J. Waller, Monta Vista, and R. C. Swallow, Fort Morgan.

A resolution was passed requesting the Seventeenth General Assembly to appropriate $30,000 to build and equip a new laboratory at the Fort Collins Veterinary College which is trying hard to become an A class college.

M. J. Woodliffe,
Secretary and Treasurer.

MAINE VETERINARY MEDICAL ASSOCIATION.

The sixteenth annual meeting of this association was held at the Cony House, Augusta, Me., Wednesday evening, January 13, 1909, with twenty-two members and two visitors present.

Dr. A. L. Murch, of Bangor, President, occupied the chair and called the meeting to order at 7.30 P. M.

The President's address was an able discourse in which he emphasized the importance of veterinary science in connection with the conservation of the public health, as well as its value considered from an economic viewpoint.

The Secretary, in his annual report, reviewed the work of his office during the past year and made some suggestions as to needed legislation.

The association re-elected its officers as follows:

President—Dr. A. L. Murch, Bangor.

Vice-President—Dr. W. S. Lord, Portland.

Secretary—Dr. A. Joly, Waterville.

Treasurer—Dr. I. L. Salley, Skowhegan.

Executive Committee—Drs. C. W. Purcell, F. L. Russell and C. L. Blakely.

Dr. F. M. Perry, of Fort Fairfield, read an excellent paper entitled "Our Advances," which was freely discussed. Dr. I. L. Salley, of Skowhegan, read an interesting paper on "Tetanus." Several matters pertaining to dairy inspection, tuberculosis and meat inspection also were discussed. Upon motion, the association adjourned to meet at Bangor in April.

A. Joly, *Secretary.*

CHICAGO VETERINARY SOCIETY.

The Chicago Veterinary Society held its regular monthly meeting January 12, 1909, at the Sherman House, Chicago, Ill, with President Joseph Hughes in the chair, who called for order at 8:30 p. m. Twenty-one members responded to the roll call. Following the reading and approval of minutes of the previous meeting, the Committee on Local Arrangements for the A. V. M. A. meeting in Chicago this year reported progress.

The Board of Directors of the Work-Horse Parade Association, appointed by President Hughes, and also the incorporation of the Association were approved. The object, as given by the incorporators, Drs. Hughes, Jaffray and Parks, is to promote the welfare of the city work-horse. It is proposed to hold the parade during the summer of 1909.

Two candidates were elected to membership at each of the last three meetings, as follows:

D. G. Marks, M. D. C., Chicago, '07; H. F. Hisgen. M. D. C., Chicago, '03; W. L. Megley, M. D. C., Chicago, '06; J. M.

Klinck, V. S., Ontario, '95; L. J. Leffla, M. D. V., McKillip, '05; A. E. McEvers, M. D. V., McKillip, '08.

Papers were read as follows: Dr. Joseph Hughes: Bacillus Necrophorus in City Veterinary Practice; Dr. L. A. Merillat: A Few Suggestions in the Treatment of Quittor; Dr. E. L. Quitman: Internal Treatment as a Means of Cure in Fistulous Withers.

Adjourned 11:30 p. m. to meet the second Tuesday in February.

J. M. PARKS,
Secretary.

ANIMAL SURGERY. WILD BEASTS ARE WISE IN MEDICINE AND EASILY HEAL THEMSELVES.—Most people have seen a sick cat eat grass or an uneasy dog seek out some weed and devour it greedily to make his complaining stomach feel better. Some few may have read John Wesley's directions on the art of keeping well—which have not, however, found their way into his book of discipline for the soul—and have noticed with surprised interest his claim that many medicines in use among the common people and the physicians of his time were discovered by watching the animals that sought out these things to heal their diseases. "If they heal animals, they will also heal men," is his invincible argument. Others may have dipped deep into Indian history and folklore and learned that many of the herbs used by the American tribes, and especially the cures for rheumatism, dysentery, fever and snake bites, were learned direct from the animals by noting the rheumatic old bear grub for fern roots or bathe in the hot mud of a sulphur spring and by watching with eager eyes what plants the wild creatures ate when bitten by rattlers or wasted by the fever.

The most elemental kind of surgery is that which amputates a leg when it is broken—not always or often, but only when the wound festers from the decay or fly bite and so endangers the whole body. Probably the best illustration of this is found in the coon, who has a score of traits that place him very high among intelligent animals. When a coon's foot is shattered by a bullet he will cut it off promptly and wash the stump in running water, partly to reduce the inflammation and partly, no doubt, to make it perfectly clean. As it heals he uses his tongue on the wound freely, as a dog does, to cleanse it perhaps and by the soft massage of his tongue to reduce the swelling and allay the pain.—(*Outlook.*)

NEWS AND ITEMS.

Dr. and Mrs. E. B. Ackerman of Brooklyn, N. Y., mourn the death of their daughter.

One of the most substantial and attractive buildings in San Jose, Cal., is Dr. P. H. Browning's new veterinary hospital.

Dr. D. Arthur Hughes is giving a course of lectures on meat and milk hygiene. at the Chicago Veterinary College this winter.

Mrs. Victoria Ellis, mother of Dr. Robert W. Ellis, died at her home at North Haledon, N. J., January 5, 1909, in her 82nd year.

It is reported that Dr. L. L. Conkey has under advisement the removal of his veterinary college from Grand Rapids, Mich., to Lima, Ohio.

An item of $400,000 for the extermination of foot-and-mouth disease, is included in the urgent deficiency appropriation bill of Congress.

The Mayor of Newark, N. J., has re-appointed William Dimond, D. V. S., Commissioner of Assessment for public improvements for that city.

Dr. T. A. Shipley has been transferred from Cedar Rapids, Ia., to South St. Joseph, Mo., at which place he is now Veterinary Inspector in charge.

The Secretary of Agriculture has lifted the general embargo upon the interstate movement of cattle from the states of Pennsylvania, New York and Maryland.

Dr. H. A. Alcorn, of Adair, Iowa, in renewing his subscription, says: "I have just completed a new operating room and office and the Review is needed."

Mrs. A. H. Baker's many friends will be delighted to learn that her famous big black cat, Hawthorne, was awarded the prize for the best male cat at the Chicago Show.

Dr. T. F. Craig of Hampden, N. D., who is spending the winter in the East, was married on the 4th of January to Miss Louise K. Marzolf of Niagara Falls, N. Y.

The annual meeting of the Interstate Association of Live Stock Sanitary Boards will be held at Chicago in September during the week following the meeting of the American Veterinary Medical Association.

Dr. D. B. Fitzpatrick, a graduate of the Veterinary Department of the University of Pennsylvania, has received a temporary appointment as City Veterinarian of Philadelphia to succeed the late Dr. Walter L. Hart.

Prof. H. D. Hanson's second edition of "Practice of Equine Medicine" has been recently published by the author. A review of the work from the pen of Prof. Liautard will be published in a future edition of the Review.

Dr. J. F. Butterfield of South Montrose, Pa., whose Ayrshires figured conspicuously in the first prize list about a year ago, visits New York City on February 3 in attendance at the annual meeting of the Ayrshire Breeders' Association.

The Faculty of the medical department of Tulane University of Louisiana announce the continuation of extension lectures by eminent specialists. February 17, Prof. W. H. Dalrymple, Louisiana State University, "Diseases Common to Animal and Man."

President Roosevelt's Horsemanship.—President Roosevelt recently rode ninety-eight miles on horseback in a day to show the officers of the army, navy and marine corps that the physical endurance tests prescribed by him as a prerequisite for promotion are not cruel or unduly severe.

The Department of Agriculture, acting under authorization of Congress, has tested Bruschettini's hog cholera vaccine and Bruschettini's hog cholera and swine plague serum and reports that the tests indicate that neither of these products are reliable agents for protecting hogs from hog cholera.

The first meeting of the Washington State Veterinary Medical Association was held at the Butler Hotel, Seattle, January 13, 1909. Twenty-eight veterinarians were in attendance. Proceedings of the meeting will be published in a subsequent issue of the Review. Hurrah! for the great north-west.

Walter L. Hart, D.V.S., graduate of the American Veterinary College, class of 1889, and for twelve years City Veterinarian of Philadelphia, died suddenly in that city, January 15, from aneurism of the aorta. He was a member of the Pennsylvania State and Keystone Veterinary Medical Associations.

Fred. Crossley, M. R. C. V. S., who enjoys the distinction of being the first applicant licensed by the State Board of Veterinary Medical Examiners of New Jersey, June, 1902, soon afterwards went abroad to seek his fortune. We note with pleasure that he has been appointed Government Veterinarian, District of Perth, Western Australia.

Census of Our Horses.—The government has been taking a census of the horses of the country and reports that there are over 20,000,000 horses and nearly 4,000,000 mules in the United States. This is a greater number of horses by several hundred thousand than were reported previously. The "horseless age" is evidently not yet in sight.

Miss Ava Pollard of Elizabeth, N. J., refused an offer of $3,500 for her Persian cat which received championship honors in January at the Boston Cat Show. High prices also figured at the Boston Poultry Show. Adolph Anderson, of Bristol, Conn., sold a cochin for $1,500 as well as several other specimens of the same breed for $1,000 each.

It will be interesting to Review readers and gratifying as well to read of the part Dr. H. D. Paxon took at a recent meeting of the Chicago Medical Society, which he attended by invitation.

This veterinarian, who for the past eleven years has been engaged in bureau work for the federal government, gave two demonstrations of pathological specimens before the society. On January 6th he exhibited speciments of cysticerci of food animals (cystic stage of tape-worms) and on the 13th frozen specimens of tuberculosis of cattle and hogs, exhibiting both common and rare specimens. Dr. Paxon was well repaid for his efforts in the interest shown by his hosts of our sister profession.

Journal

AMERICAN VETERINARY REVIEW.

MARCH, 1909.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, January 15, 1909.

RABIES IN YOUNG DOGS.—*"He did not bite ugly." "He did not bite like a mad dog." "He did bite only to play, because its teeth hurt."* Such, said Doct. P. Remlinger, are the replies given in the history of cases of persons that have been bitten by young puppies. Yet how erroneous! In a paper published in the Revue Generale, on *Rabies in Young Dogs,* the learned professor writes: "It is an opinion, quite well admitted, that very young puppies do not contract rabies and therefore cannot communicate it. Indeed, rabies is always the result of contamination from another rabid animal, the incubative stage is long, generally several weeks. And therefore, a series of extraordinary circumstances seems to be necessary for a young dog, say a pup one or two months old, to become rabid. And yet, this can be met with, and, at least in the Orient, is more easily realized than it was supposed! Indeed, the young dog is much more susceptible to rabies than the adult, as a very small quantity of virus is sufficient to give him the disease, as with him the incubative stage can be excessively short, scarcely one week, and as passing through the organism of a young dog, the rabid virus becomes more virulent, it is evident that the bite of such an animal is, in comparison, more dangerous than that of an adult. And then Doctor Remlinger gives the history of five typical cases.

1st. It is a three months old pup, one of a litter of three. He has bitten five persons, but no attention was paid to it, as "in biting, he did not seem ugly." "He was teething and it was its teeth that made him bite," said the owner. He died in three days after symptoms of progressive paralysis. Two rabbits inoculated by sub-duramater method died with rabies in thirteen and fifteen days. One other pup of the same litter, presented similar symptoms, he bites a young girl, tears the clothes of several people, dies, and two rabbits are inoculated with its cephalic bulb. One dies in thirteen, the other in fourteen days, with rabies. The third pup of that litter died also after a few days of sickness; perhaps of rabies. But as the cadaver had not been obtained, nothing is sure. How did these puppies get the disease could not be made out!

2d. A very young pup has bitten six children "not with ugliness, he was playing." He looked one month old. He has been ailing, showed paralytic symptoms, dies after ten days of sickness. His bulb is used to inoculate two rabbits. One dies in eleven and the other in eighteen days.

3d. Two months parlor puppy, has bitten a servant and attacked several persons. He has typical furious rabies. Dies in twenty-four hours after the paralytic symptoms. Two rabbits inoculated and two deaths of typical paralytic rabies, one in sixteen, the other in twelve days.

4th. One and one-half to two months street pup has bitten three persons and several dogs; he has furious rabies, from which he dies. The inoculation kills two rabbits, one in nineteen and the other in twenty-one days.

5th. Street puppy, no more than two months old, has typical furious rabies. The inoculation kills two rabbits in eleven and fifteen days.

Conclusions: Rabies is not rare in puppies. The rabid virus increases in virulency by passing through such young animals. Rabbits inoculated under the dura mater with cerebral

bulb, instead of being taken the 17th day (average number accepted by experimentators) present the first symptoms of the disease, the 13th, 12th, 11th and even the 10th day.

* * *

After having made these conclusions, two questions presented themselves as being very interesting: 1st. In what proportion did young dogs, inoculated sub-cutaneously with rabid virus, contract the disease. 2d. What was in them the average duration of the incubative stage?

From the experiments that he has made, Remlinger has found that out of nine small dogs inoculated with small doses of street virus, seven (77.77 per cent.) contracted the disease. A much higher percentage than those observed, in similar conditions, with adult animals.

The incubative stage with inoculation under the skin is also considerably reduced. In the majority of observations the virus, inoculated under the skin of the young dog, has had an incubative stage analogous to that which it would have had if inoculated under the dura mater of rabbits. No, young pups are not immune against rabies. They are more susceptible to it than older dogs. The stage of incubation may be extremely short with them and they may be dangerous from the time of the apparition of their teeth and even before as they may communicate the disease, by their saliva, their lickings and their claws.

No one can deny the great value of these communications of Doctor Remlinger. Besides their scientific value from the veterinary point of view, they bring out positive facts which to that of general humanitarian information cannot be overlooked. They destroy an old notion of no danger from the bites of young pups, they guard people and children to play with such animals and allow them to use their teeth in their play. They also impose in cases of bites by one of these young beasts, to resort as early as possible to proper treatment.

* * *

Percutaneous Tuberculination.—This is a method used by a German physician, Doctor E. Moro, of Munich, who since 1907 has obtained a percutaneous reaction under the form of folliculitis, by rubbing the skin of tuberculous individuals with an ointment made of six gramms of old tuberculine of Koch with five of anhydrous lazoline. A small quantity of this ointment, say as big as a pea, is rubbed on a small surface of the skin. In case of positive reaction, pale papulae appear in various number on the rubbed surface and again sometimes a much larger and redder eruption. The reaction occurs in twenty-four or forty-eight hours and is accompanied with slight itching. There is no general reaction.

Is this a new method which veterinarians can resort to? I doubt it, although it may be. At any rate, it is probable that it will finally have to be classified among those already known and as I remarked in my last Chronicle, sub-cutaneous injection will always remain the most practical and sure test. And I would not have made allusion to it, if there were not other points curious and interesting connected with this process, which I find related in the *Presse Medicale,* in an article headed, "Cuti-Reaction and Nervous Reaction."

The number of works that have followed the discovery of von Picquet are daily increasing. With most of them the principal character is statistical. Indeed it is by the aid of numbers, indicating the frequency of the cuti-reaction and of the ophalmo-reaction, that attempts are made to establish the specificity of the reactions, cutaneous or conjunctival. But there are very few among these works which, in the study of the question have considered it to a more general point of view. Doctor Moro, the author of the precutaneous reaction, has made researches in that direction and has published them. His clinical observations and experiments have brought him to the conclusion that the cuti-reaction is but a reflex, a nervous reaction, specific if one wishes to call it so, but yet nervous reaction before all, in which toxines and antibodies do not act a predominent part.

Of course the facts related by Doctor Moro will never be observed in animals and his conclusions cannot be entertained for our patients; but as his observations are full of interest, I will here relate them.

* * *

What was the results noticed by Doctor Moro by the use of his tuberculine ointment? A young girl had a cervical adenopathy. Cuti-reaction of von Picquet is resorted to and at the same time a friction of Moro's ointment is made on the skin of the abdomen. The result is negative. Three weeks later another tuberculination is made with both methods with this difference that the friction with the ointment is made this time on the right breast, a little above the nipple. Forty-eight hours after, the cuti-reaction is most marked. There were eight papulae in the region, where the friction had been made, but *at the same time there are on the left breast, which had not been rubbed, in a perfectly symmetrical spot sixteen other characteristic papulae.*

This typical reaction, in a symmetrical spot, which had not been touched with the tuberculin, was also observed in two other children and with a little more curious condition, on a twenty-four years' old young man suffering with pulmonary tuberculosis. With him the friction of the ointment was made on the right forearm. The reaction appeared after six days and lasted one week. It *spontaneously returned,* that is without a second friction, fifteen days later and then after a few days, reappeared again in a symmetrical point on the left forearm, which had not been rubbed. It lasted some time and after it had been gone for fifteen days, it returned.

Another interesting observation. A fifteen months' old child had a friction made on the skin of the abdomen, above the xyphoid appendix. The characteristic eruption appeared forty-eight hours later. It spread round until it had formed a kind of belt surrounding the left half of the thorax and stopped at the vertebral column.

Besides these cases, and many others, peculiarly specific, which show the interference of the nervous system in the phenomena of the cuti-reaction, Doctor Moro says that he has observed others, very numerous, where the "reflexed" cuti-reaction occurred, not on a symmetrical spot but in a region far from that where the friction had been made.

In such conditions what becomes of the specificity of the cuti-reaction? Specificity, which is supposed to result from the meeting of the tuberculin with its antibody existing in the tuberculous organism. Moro cannot say at present, but he writes that in tuberculous individuals, there exists a peculiar sensibility of the nervous system towards tuberculine, a kind of modified reacting power, of specific nervous nature. No doubt, the subject is worth inquiring into and probably more will soon be heard from the German investigator.

* * *

When our dear departed friend, Roscoe Bell had returned home from attending some of our national meetings, it was with pleasure that he offered our readers what he called the "Echoes of this or that meeting" where he related some of the events that had taken place whether in the journey to or fro, or again during the gathering of our friends. He had been there and he knew what to select which would interest or perhaps amuse his readers.

As I was not in Philadelphia nor in Washington, I do not pretend to send *Echoes* of these meetings but yet will say a word or two about this last, the one of Washington.

In looking over the program of the Congress on Tuberculosis, I remarked that in section 7th which was, I think, the veterinary section proper, there were a very large number of names of veterinarians who were registered to present papers on various subjects. Were these read? To this date in all the veterinary publications in English, only four or five articles have been printed and the profession had an opportunity to read them. Of course, the comptes rendus of the proceedings will contain

them all, but no doubt several of the highest importance would have been well appreciated if they had been offered through the professional press. Was it that when the time came, the interest had vanished away or were the engagements forgotten?

An interesting echo of the Congress on Tuberculosis, has reached me in the shape of a program of the Medical Meetings in connection with the International Tuberculosis Exhibition, which was had in New York between Nov. 30, 1908, to January 15, 1909. Of course, it is not a direct echo from the Congress, but is it not a kind of offspring of it? I fancy it has been. In the program there were many names of physicians who were to take an active part in the conferences, but why is it that not one veterinarian in the state is mentioned, still the subject is certainly of importance to them.

Is it also an outgrowth of the Congress that the National Tuberculosis Conference and Exhibition, which will be held in England at Caxton Hall, Westminster, in February, was organized?

There, it is another arrangement. Members of the veterinary profession have been asked to join and among the speakers figure the names of three well-known veterinarians, H. A. Woodruff, M. R. C. V. S., A. R. Littlejohn, M. R. C. V. S., and Prof. G. H. Woodbridge, F. R. C. V. S.

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And to conclude, read the Editorial of the *Veterinary Record* in appreciation of two letters which found their way in the *Times* of London, letters and editorial which are certainly related to the Washington Congress, although they allude principally to the discussion between the learned German bacteriologist Prof. Koch and the members of the Royal Commission on Tuberculosis of England. It reads as follows:

"The account of an interview with Prof. Koch, which we "reprint from the *Times*, contains an interpretation of the great "German bacteriologist's position which will scarcely convince "many of his critics in this country. Two points only may be

"noted as illustrative of Prof. Koch's undoubtedly very in-
"genious method of controversy. He points out that he 'never
"maintained that human beings could not be infected by ani-
"mals.' That is quite true, but he certainly advanced the opin-
"ion, which he reiterated at the Washington Congress on Tu-
"berculosis, so recently as September last, that cases of human
"tuberculosis contracted from bovine sources are so rare, and
"so slight, as to be practically negligible. The Royal Commis-
"sion on Tuberculosis was established to test that opinion and
"a host of workers throughout the world pursued independent
"researches. The result has been a complete refutation of
"Koch's view and an all but universal acceptance of the fact
"that tuberculous cattle are a source of grave danger to man-
"kind.

"The second point is rather entertaining. Prof. Koch in-
"forms us that 'the starting point of the whole difference be-
"tween his critics and himself arose from the fact that the
"former attached more importance to combating bovine tuber-
"culosis than to the transmission of consumption among human
"beings.' We do not think that the assertion is correct with
"regard to any of the Professor's critics, and it is certainly
"quite incorrect with regard to the first in the field.

"The first man to publicly and deliberately dissent from
"Koch's startling pronouncement in 1901 was our countryman
"and colleague McFadyean—who, not long before, addressing
"the National Veterinary Association at Plymouth, had care-
"fully and clearly laid down the truth that the great majority
"of cases of human tuberculosis originate in infection from a
"human source. Some at least, of Prof. Koch's criticisms of
"his critics are as ill-grounded as his later conclusions upon tu-
"berculosis have proved to be.

"It is not likely that any one, in England or elsewhere, will
"underestimate the dangers of tubercular infection from human
"sources. It is quite certain that Prof. Koch grievously under-
"estimates the dangers of infection from cattle. Practically the

" whole scientific world has decided against him; and this recent " interview, in which he sought to minimize the differences be- " tween himself and his opponents, tempts us to hope that he is " beginning to recognize the untenability of his own position."

Decidedly, as as far as tuberculosis is concerned, the star of Prof. Koch is on the decline!

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Contagious Diseases and Their Prophylaxy According to Chinese Ideas.—*Contagious Diseases and Their Prophylaxy according to Chinese ideas* is the title of an article published in the *Berliner Tierarztliche Vochenschrift,* from which our contemporary the *Revue Generale* has extracted this interesting summary. The original is due to an army veterinarian, Mr. Pfeiffer, who himself found the documents in the treatise of " Yu Ben Youan and Yu Ben Hang," entitled " a general treatise on the methods of treatment of the diseases of horses with addition on those of bovines and camels."

Rinderpest is called I. or again Tschang I., which means febrile pest. It is due to emanations from marshes and also to divine interference. It is contagious. Cattle must be removed from barns and be taken on the mountains, where the air is drier and better. To quiet the anger of the Gods, paper is burnt. the walls of the stables are covered with bands of red paper, upon which are written sacred sentences. The treatment of the sick consists in ingestion of fermenting alcoholic mixtures and powders of glycine, rhubarb, vinegar, wine or like compounds of vegetable powders and sugar. The disease is in permanence in China, prevailing most in spring, but much less in winter. Sheep and goats supply the want of food caused by the death of cattle. Camels do not seem to be affected with it. Chinese do not believe in vaccination.

Foot and Mouth Disease is divided in two special diseases, that where the tongue is affected and that where it is not. It is treated with a mixture of powders of cardamon, rhubarb, pru-

num, jasmine and apricot pits. It is considered as contagious and nothing is done to avoid it. No sanitary measures are taken for markets.

Glanders (Tiaou bi) presents four forms: with clear discharge, with thick discharge, with and without sneezing. The transmission to man and to animals is recognized. When the discharge is dark yellow and has a bad odor, it is a bad case. Glanders is due to miasms of unknown nature, which act on the predisposed subjects. Affected animals are considered as dangerous. They must be isolated. The cadavers must be buried deep.

Anthrax Fever is also divided in four forms: " Young t'sin " or hard anthrax and " Houang t'sin " or soft anthrax. The first is transmissible to man and is the most frequent.

Rabies (foung) is an inoculable disease, transmissible to most animals and to man. It is due to the ingestion of beans and some herbs. It is known that it is always preceded with an incubative stage and since a long time that the bites of dogs are dangerous before the animal shows signs of being affected. Rabies is frequent in China.

* * *

Special Report of New York State Veterinary College.—I have been favored by Doctor V. A. Moore, Director of the N. Y. State Veterinary College, with a copy of the special report which he has prepared at the request of the President of Cornell University.

The report recommends itself to all who have charge of the work and responsibilities pertaining to the directorship of a school, and specially in this direction, with veterinary institutions.

I do not know if similar documents are or have ever been prepared by Directors or Deans of our many veterinary colleges for the information of their boards of officers! If they have not, they ought to, at least for the good of the institution of which they are the head!

Dr. Moore establishes and presents first of all, the outlines of what ought to be the curriculum of a veterinary institution, worthy of that name, and in proportion with the dignity of a great university to which it may belong; and with no little courage points out the deficiencies which may exist in the Ithaca Institution. I wonder if the committee which gave cause to the issue of Circular No. 133 of Secretary Wilson, ever heard from any of the schools it visited, such an honest acknowledgment of the improvements that Director Moore points out as needed to make good the omissions of the present curriculum. But if the critics are severe, they do not take away any of the advantages and opportunities that the state college offers; the report does not ignore the work accomplished by the noble efforts of the faculty, it fully points out the position occupied by the members of the alumni, it lays out the scientific researches that have been made, relates the publications issued, etc., etc., —and then it states what the present policy can be offered by the University Officers: *Best possible curriculum—with teaching of the highest possible character—Development of the scientific and practical parts of the curriculum**—Institute and carry out research works—Make the work such as to be as much of assistance to practitioners and stock owners as possible.

But to realize such a grand programme, more buildings are necessary and a large amount of money must be spent.

Several hundred thousand dollars will be needed and must be obtained. Will the legislature make more appropriations? Why not? The Empire State can well afford that luxury, she is rich enough!

At any rate, the contents of the report and the special statements that it contains are very interesting. They undoubtedly show how seriously Dr. Moore has studied the condition and needs of the State Veterinary College, how convinced he is of the vast amount of work and responsibility he has on his shoulders, and demonstrates also his determined will to exorcise all

* Italics are mine.

his efforts to succeed in the reforms and improvements that he sees necessary to make the State College what it ought to be! One of the first in the United States! Every veterinarian will wish him success!

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Short Bibliographic Notices.—*The Veterinary News:* Our excellent contemporary has announced that on the first of January, 1909, with the beginning of Vol. 6 changes are to be made in the Editorial Staff. With such names as those of Prof. H. A. Woodruff, M. R. C. V. S., and Mr. J. S. Lloyd, F. R. C. V. S., and the assistance of several collaborators as Mr. J. Craig, M. A., E. Wallis Hoare, James MacQueen and others, all well-known members of the profession, there cannot be any doubt that *Veterinary News* will hold a prominent place among the other scientific journals of England.

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La Razza Ovina di Karakul, is an Italian pamphlet issued by Prof. Antonio Pirocchi, where is made a report to the council of zootechny upon a proposal of importation of this ovine breed in Italy.

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The Agricultural Journal of the Cape of Good Hope with Notes on Ostrich Parasites, by W. Robertson, M. R. C. V. S.; *Veterinary Notes* of Parke, Davis & Co., vol. 2, No. 1, with the bibliography of the President of the A. V. M. Association, Doctor J. C. Rutherford; *Studies from the laboratory of Comparative Pathology and bacteriology* of the N. Y. State Veterinary College, which contains reprints of various publications, such as those of Dr. W. J. Taylor, Dr. S. W. Burnett and principally of Dr. Veranus A. Moore. A supplement to the Russian publication "Zeitschrift fur wissenschaftliche und practische Veterinarmedicin," which is headed "*Der histologische Bau der Luftsacke des Pferdes,*" by S. Tschetwerikoff.

A. L.

PROBLEMS CONFRONTING THE PROFESSION.

There never was a time when the opportunities for the trained veterinarian were so great as they are to-day, yet it must be evident to every thoughtful person that the duty and responsibility of the profession are also in proportion to the opportunities which present themselves. The benefits that would accrue to the state from an ample development of veterinary research, veterinary education and veterinary administration are beyond calculation.

When we stop to consider the important part which dairy farming and the live stock industry play in the world's economy, and the close relationship borne by the teaching of the veterinary sciences to the success of these occupations as well as the protection accorded to the health and lives of the human population by an intelligent application of the principles of veterinary sanitary science it seems astonishing that any argument should be necessary in favor of that which is of such vital and far-reaching importance to the public welfare.

The veterinarian who alleviates animal suffering for the sake of the animals themselves is indeed rendering a humane service; the practitioner who restores valuable animals to health and usefulness protects property and contributes to public economy; the veterinarian who restricts the spread or exterminates an animal plague is rendering a service to man and beast and if the disease be communicable to man he becomes a guardian of the health and lives of the human population. Such services are relatively important and should receive proper appreciation by those concerned.

Nevertheless there is a still greater and even more noble work for the veterinary scientist and practitioner, although not in popular demand now in our day and generation. We refer to the application of the principles of the veterinary sciences to the development of animal husbandry along lines to remove the causes and eliminate the conditions responsible for disease. This reason alone would justify the claim that the department hav-

ing charge of the veterinary affairs of a state should be established on a broad enough basis to admit of ample scope for work along this line as well as to have control over animal food products intended for human consumption. If this could be carried out successfully a number of the diseases of both animals and men which sanitarians are now attempting to restrict and exterminate would not occur at all and would not be subjects for agitation and contention by medical men and the public. The early suppression of animal epidemics with small loss is a great achievement, but a much greater one would be the conducting of animal husbandry and dairy farming in the light of such scientific knowledge that there would be no epidemics to exterminate. Such is the ideal to which the true veterinarian is striving to attain, and who can question the usefulness and nobility of his calling!

The dealing with a contagious disease of the human family is essentially a public health problem. In the restriction and extermination of an animal plague vast economic and commercial interests are not infrequently involved. In other words, agriculture as well as public health and wealth are concerned in the intelligent application of the principles of veterinary science and art and a state bureau or board should be one of animal industry as well as one of animal health so as to be inclusive and to have ample scope to deal with all animal problems. There is much research and experimental work for such a bureau or board to do together with a great work in zootechnics, such as feeds and feeding, breeding and animal production as well as many other branches of science requiring elucidation. Such a bureau or board should also be charged with dairy inspection and all other animal food products intended for human consumption.

The veterinary colleges, at least some of them, should give the subjects appertaining to the line of work here outlined a much more important place in their curricula, for unless veterinary students have the mental equipment and requisite training

they cannot expect to take up work of this character with success or credit to themselves or the profession. The state examining boards of a number of the states are requiring that all veterinarians applying for license to practice the profession shall have an adequate training in zootechnics, in animal hygiene and sanitary medicine, in chemistry and bacteriology, in dairy sanitation and in meat inspection. If this part of the education and training of the modern veterinarian be neglected the principal avenues to his usefulness and success in life are closed. The demand for veterinarians qualified to do the class of work which the state requires is in excess of the supply, which, so far as our knowledge goes, cannot be said of any other profession in America to-day.

The public mind is now aroused over the milk question as never before. It is hard to understand the sense of propagating micro-organisms and then devitalizing them by Pasteurization and sterilization. We cannot kill pathogenic bacteria without killing the non-pathogenic bacteria. This indiscriminate warfare against bacterial life, much of which is essential to digestion and assimilation, materially alters the character and quality of the product.

The first essential of a clean, sound and healthful milk supply is sound healthy cattle. It is all right to send inspectors to see that stables are kept clean and in a sanitary condition, that the animals have ample light and air space, that they are fed on proper food and supplied with pure water. In fact, these are among the prime requisites of healthy existence, but an ideal environment will not exterminate infection when once established in the systems of dairy cattle. Therefore, it is absolutely necessary that such inspections, if they are to protect the public from infection, shall be made by trained veterinarians. Anything short of this will not only fail but will be misleading and is calculated to give the public a feeling of confidence and security that does not in reality exist. A tuberculous cow in a million-dollar stable under the best sanitary conditions still remains a

tuberculous cow and the danger of infection through her milk and otherwise still exists.

The enactment of the present meat inspection law by the Congress of the United States and the inauguration of a meat inspection service along modern sanitary lines by the Bureau of Animal Industry, U. S. Dept. of Agriculture, has attracted widespread public attention as to the necessity and character of the work and a public sentiment has been awakened in favor and support of the service to an extent that even surprises the profession who advocated meat inspection long before the public were ready to accept it. This service demonstrates the urgent necessity for the establishment of state and municipal meat inspection services in harmony with the federal law if the public are to be safeguarded from unsound and unwholesome animal food products in our local markets. The only meat inspection that is of real practical value is abattoir inspection by trained veterinarians. Therefore, every state should require all slaughtering of cattle, sheep and swine to be done in abattoirs licensed by the state and under a system of inspection by veterinary inspectors somewhat similar to that now being conducted by the federal government.

Local meat and milk inspection is usually begun at the wrong end, the product is inspected instead of looking first to the source of supply, the health and environments of the animals. Invariably it should be insisted that veterinary sanitary service be rendered by trained veterinarians for the same reason that we look to practitioners of human medicine to limit and exterminate the diseases of man.

The best interests of the public are not duly conserved by those in authority when legislative bills are drafted covering the control of diseases of animals, the licensing of abattoirs and creameries, the inspection of animal food products without the aid of capable veterinary counsel. What would the public think of a board of health being instrumental in drafting a bill relating to diseases peculiar to the human system without having the advise of competent medical men?

The veterinary profession in no state should rest content until the veterinary sanitary administration of such state is under competent veterinary direction. The organic law constituting the Bureau of Animal Industry requires that the chief of said Bureau shall be a veterinarian and the wisdom of this requirement has been demonstrated time and time again since the organization of said bureau by Dr. Salmon a quarter of a century ago. There can be no good and sufficient reason advanced why the veterinary administration of the several states should not likewise be under competent veterinary direction. Does any one presume that the medical profession would stand for one moment for a veterinarian to have charge of the diseases of the human family in any state? If not why should our profession stand for any other than a capable veterinarian to have charge of veterinary affairs. The veterinary work of each state should be consolidated so far as possible under one department or head. The consolidation of the work under one department or head admits of the development of the veterinary sciences to the benefit of agriculture and the protection of public health. It prevents duplication of work and overlapping and is in the interest of efficiency and economy.

The importance and value of sanitary science is being recognized and appreciated to-day by the public as never before. Many momentous and intricate problems now confront the profession in connection with dairy hygiene, state and municipal meat inspection. Legislation is sadly needed in several commonwealths, but a public enlightenment from the veterinary viewpoint must come first, for lawmakers are not in the habit of acting in such matters in advance of public sentiment. When the producer and the consumer come to a full realization of the advantages of an efficient veterinary sanitary service suitable laws will be placed upon the statute books forthwith, but until that time comes it is almost futile to attempt to accomplish what the public does not appreciate, much less demand.

ORIGINAL ARTICLES.

CONTROL OF TUBERCULOSIS IN DOMESTIC ANIMALS IN PENNSYLVANIA.*

By Louis A. Klein, V. M. D., Assistant State Veterinarian.

The methods now in use in Pennsylvania for the control of tuberculosis in domestic animals have been developed since 1896, when the State Livestock Sanitary Board was organized. These methods may be classified as follows:

(1). Examination and tuberculin test at the request of the owner of herds suspected of infection with tuberculosis.

(2). Assisting owners in disposing of cattle that have reacted to private tuberculin tests.

(3). Compulsory notification by practicing veterinarians of cases in cattle of advanced or generalized tuberculosis or tuberculosis of the udder of which they may obtain knowledge.

(4). Quarantining cattle affected with advanced or generalized tuberculosis or tuberculosis of the udder, and rendering assistance in disposing of such cattle.

(5). Inspection and tuberculin test of dairy cows and cattle for breeding purposes shipped into Pennsylvania from other States.

(6). Indemnification of butchers and others for cattle slaughtered for food and condemned on account of tuberculosis.

(7). Co-operation with local Boards of Health in the inspection of dairy herds and the quarantine and disposal of cattle showing physical signs of tuberculosis.

(8). Inspection of animals slaughtered for food and control of the sanitation of slaughter houses.

Vaccination of cattle against tuberculosis is also being carried out on a number of farms, but this method is not as yet be-

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ing generally applied. In formation regarding tuberculosis is sent out in letters, circulars, and bulletins and effective instruction in this line is also given by means of public post-mortem examinations of reacting cattle.

Dr. Leonard Pearson is the author of these various methods and, as State Veterinarian and Secretary of the State Livestock Sanitary Board since its organiztion, he has had charge of their execution.

1. Examination and Tuberculin Test of Suspected Herds.

This work is at present conducted under practically the same plan that was recommended to the Board by Dr. Pearson at its organization meeting in January, 1896. Certain details have been modified and new features have been added from time to time to meet conditions as they arose, but the basic principle remains the same. This is the voluntary co-operation of the herd owners. Looking backward, it appears that the plan was merely made to fit in with the circumstances, but it must not be forgotten that these circumstances had to be anticipated, and that when the plan was adopted tuberculin had only been known for five years and there were so many different methods in use in the various states and in foreign countries for controlling tuberculosis in animals that there was no standard to follow. The principle of voluntary co-operation was based upon the conclusion that since it was necessary for the owner to observe certain precautions to prevent the re-introduction of tuberculosis into the herd, to appraise and remove the infected cattle without assurance of this co-operation would convert the work into a form of gratuitous livestock insurance. The soundness of this conclusion has been proven again and again during the past twelve years.

The form of application in use at the present time is quite similar to the one first adopted. It contains a contract obligating the owner to dispose of the diseased cattle under the rules of the State Livestock Sanitary Board; to thoroughly disinfect the premises and to correct any faulty sanitary conditions after the

infected cattle are removed; to observe the precautions and employ the means recommended by the Board to prevent the reintroduction of the disease into the herd; to purchase for addition to the herd only such cows as have passed the tuberculin test, and if 20 per cent. of the herd reacts, to have a retest made at his own expense within eight months after the State inspection.

During the second year of the work the applications became so numerous that it was not possible to make all the examinations requested, a condition that continues to this day, and since that time owners have also been required to state their reasons for believing that their herds are infected with tuberculosis, and an attempt has been made to examine those herds which appear most likely to be diseased. Not very long after the inauguration of the work applications had increased to four times the number of herd inspections that could be made with the money available, and numerous herds were being tested with tuberculin at owners' expense, a thing that was very rarely done before the State inspections were instituted. Applications for herd inspections have continued up to this time to be greatly in excess of the number of inspections that can be made. At no time since the beginning of this work have the resources of the State Livestock Sanitary Board been sufficient to meet the demands of those who desired to co-operate with the State in the repression of tuberculosis in their herds.

The great increase in the number of applications is to be explained by the increase in knowledge of herd owners and the general public regarding tuberculosis in cattle; and it is believed that no one thing did more to convince cattle owners of the economical reasons for repressing the disease in cattle than the policy of the State Livestock Sanitary Board in arranging for them to witness post-mortem examinations of reacting cattle. When reacting cattle are to be destroyed on a farm the farmers of the vicinity are afforded an opportunity to witness the post-mortem examinations, unless, as happens in some rare cases,

the owner desires to avoid publicity and it has been repeatedly observed that whenever cattle are disposed of under these conditions that a number of applications for herd inspections are received from the locality. In some cases when owners of infected herds have had no personal desire to apply for inspection they have been led to do so by the public sentiment existing in their community or among the consumers of the products of the herd. Badly infected herds, when owners are uninterested, are usually brought to the attention of the Board by the operation of the law requiring notification of cases of advanced or generalized tuberculosis or tuberculosis of the udder, by neighbors, or by the local authorities.

When it is decided to make an inspection and a tuberculin test of a herd the work is assigned to a veterinarian practicing in the locality, and a careful physical examination of each animal is made before the tuberculin test is applied. The tuberculin used in these tests is prepared in the laboratory of the Board. An examination is also made into the sanitary conditions of the premises and the herd hygiene. All cattle found to be tuberculous must be at once separated from the healthy animals, fed and cared for separately, and their milk not used for any purpose unless sterilized by boiling or pasteurized by heating for ten minutes at 165° F., until they are disposed of in accordance with the rules of the Board.

The owner has the choice of two methods of disposing of the tuberculous cattle: those not showing physical symptoms can be kept in quarantine under the Bang system; or all of the tuberculous cattle can be slaughtered. Professor Bang's method of repressing tuberculosis has not proven very popular in Pennsylvania. It has been adopted in only a very few instances. The reasons appear to be the restricted market for the heated milk and the extra work involved in maintaining two separate herds. When the owner elects to have the cattle slaughtered they are appraised by an agent of the Board and the owner, but if no agreement can be reached by these two, which rarely happens,

a board of appraisers is appointed: one by the owner, one by the State Livestock Sanitary Board, and a third by these two. The law under which such cattle are appraised provides that not more than three-fourths of the actual value of the animal at the time of the appraisement can be allowed and in no case can the amount exceed $25 for a grade or $50 for a registered animal. The appraisements for individual animals average from $22.25 to $23. After appraisement the cattle showing external symptoms of tuberculosis are destroyed and the carcasses disposed of by burial or cremation on the premises or through an approved fertilizer plant; the others are removed to a slaughter house and killed under inspection, the carcasses being disposed of in accordance with the recognized principles of meat inspection. This latter practice is sometimes attended with difficulty in small towns, where butchers occasionally find it inadvisable to handle reacting cattle on account of the sentiment existing among their customers. Some meat consumers are very inconsistent in this respect. A butcher can buy a cow out of a herd in the same locality which is very likely in the same condition as the inspected herd and slaughter it without inspection and can sell the meat without objection, but if he buys cattle which have reacted to the tuberculin test, but which do not show any other symptoms of disease and slaughters them under proper inspection he may not only be unable to sell the meat but may also gain the reputation of killing diseased animals. It is very gratifying to be able to state, however, that this inconsistency does not exist to the same extent that it did several years ago and that it is fast disappearing as the knowledge of meat inspection and tuberculosis becomes more and more general.

After the tuberculous cattle are disposed of the premises are thoroughly cleaned and disinfected under state supervision and the owner is instructed with regard to the correction of any faulty sanitary conditions which may exist and the precautions to be observed to prevent the re-introduction of the disease into the herd. If more than 20 per cent. of the herd have reacted

a record is made of this fact and the matter is followed up to see that a retest is made within the proper time.

Detailed statistics concerning this work for the last twelve years could be given, but they would only show the number of herds which it has been possible to examine with the resources at the command of the Board and would furnish no exact information regarding the real value of this work to the livestock interests of the Commonwealth of Pennsylvania. However, in order to give an approximate idea of the cost of herd inspections I will append a few figures covering the last three years.

	No. herds inspected.	No. infected cattle.	Total appraisement.	Expense of inspection.
1905	773	1,352	$24,915.90	$4,589.59
1906	858	1,536	23,344.06	3,886.92
1907	878	1,819	20,232.40	3,670.59

The number of infected cattle given above does not indicate the extent to which tuberculosis exists in individual herds in Pennsylvania. These figures include the clinical cases disposed of during the year and also those condemned in slaughter houses on account of tuberculosis and for which indemnity was paid. It must also be remembered that only the herds which were manifestly diseased were inspected and tested with tuberculin.

2. Assisting Owners in Disposing of Cattle Found Tubercular on Private Examination and Test.

Soon after the beginning of this work herd owners became so interested in repressing tuberculosis that when the Board could not comply with their application for an examination and tuberculin test many of them had the examination and test made at their own expense. As early as 1897 a number of large herd owners and dealers had arranged to sell cattle subject to the tuberculin test. These facts are cited to show the effect of the dissemination among cattle owners of knowledge regarding tuberculosis.

In 1897, the second year after the inauguration of the work, it was decided to extend to owners having their cattle examined and tuberculin tested at their own expense, the same assistance in disposing of tubercular cattle as was extended in those cases where the examination and test was made by the State, and under the same conditions. This was done in order to extend assistance in repressing the disease to as many herd owners as possible and also to discourage unscrupulous persons from disposing of reacting cattle to unsuspecting purchasers. So many private tests were made that the demands for this assistance soon became so numerous as to over-tax the resources of the Board, and at the present time a large number of herds are being examined and the tuberculous cattle disposed of in this way.

3. Compulsory Notification of Clinical Cases.

Since 1905 practitioners of veterinary medicine have been required by law to report to the State Livestock Sanitary Board all cases of advanced or generalized tuberculosis or tuberculosis of the udder of which they may obtain knowledge. Upon receipt of such a report authority is issued to an agent of the Board to appraise the affected animal, and if the owner will agree to the appraisement and will sign the contract described above, to have it destroyed and the carcass properly disposed of. The premises are then cleaned and disinfected and any faulty sanitary conditions corrected. If the owner refuses to dispose of the animal under these conditions it is placed in quarantine and the use of the milk forbidden unless it is sterilized or properly pasteurized. Such refusal on the part of the owner, however, is very rare because in most instances the case is brought to the attention of the veterinarian by the owner himself.

4. Quarantine of Advanced Cases and of Cows with Tuberculous Udders.

Cattle affected with advanced or generalized tuberculosis or with tuberculosis of the udder are a far greater menace to the herd and to the public than those animals in which the existence

of the disease can be detected only by the tuberculin test and for this reason every effort is made to locate such cattle and to reduce or abolish the dangers resulting from their existence. As already stated, many such animals are reported to the Board by veterinarians, but perhaps an equal number are reported directly by the owners. In some instances the reports come from neighbors or from local health officials. Frequently, reports from the latter sources are discovered to be unfounded but a sufficient number of dangerously diseased cattle are found to justify an investigation of all such reports. The detection and quarantine or destruction of such animals not only removes fruitful sources of infection from individual herds but also prevents the use of the milk of such cattle except under proper conditions and makes it impossible for them to be sold into other herds or to be slaughtered for beef.

5. Inspection of Cattle Imported from Other States.

At the beginning of this work it was recognized that the plans for the repression of tuberculosis within the State would be more or less vitiated if cattle were permitted to be shipped into the state without any regard to their condition as to health. Tuberculosis had been found to be most prevalent in the old dairy districts of the State which obtained their supply of cattle from outside sources. Counties in the interior of the State which raised a sufficient number of cattle to meet local demands, or in excess of this demand, and into which cattle from outside the State were rarely, if ever, shipped were comparatively free from the disease. Several of the New England states had laws requiring that the tuberculin test be applied to cattle shipped from other states and there was every reason to believe that cattle which did not pass the test would be sent into those states having no requirements. There was also positive knowledge of herds in other states being secretly tested and dispersed on account of extensive tubercular infection, the cattle being sold to dealers to be shipped a comfortable distance and sold to unsuspecting parties. A number of such shipments were made into Pennsyl-

vania. With the State paying an indemnity for tuberculous cattle there was also the possibility of cattle known to be diseased being purchased for a small sum in other states and shipped into Pennsylvania to obtain this indemnity. Cattle dealers from other states had repeatedly tried to purchase reacting cattle from farmers in Pennsylvania and it was not unreasonable to suspect that the same thing would be attempted in other states and that if the farmer was not allowed an indemnity by his state the sale was more likely to be made. Moreover, tuberculosis had been officially reported in all of the states from which cattle were being shipped into Pennsylvania, and in some of them it was quite prevalent.

Consequently, a law was passed by the legislature in 1897 and became effective on January first, 1898, regulating the shipments of dairy cows and cattle for breeding purposes from other states into Pennsylvania. Under this law the cattle are required to be inspected and tested with tuberculin either before shipment, at a suitable stockyard nearest the state line on the railroad over which they are shipped, or after their arrival at destination. If the cattle are inspected outside of Pennsylvania the law requires that the inspection must be made by an inspector who has been certified to be competent and reliable by the official in charge of the livestock sanitary work in his state; if the inspection is made within the state it must be made by an inspector approved by the State Livestock Sanitary Board. If it is desired to have the cattle inspected after their arrival at destination a permit to make the shipment must first be obtanied from the board. These permits authorize the cattle to be shipped in quarantine, and it is required that after their arrival at destination they shall be kept separate and apart from other cattle, that the milk shall not be sold or used without previous sterilization by boiling, and that they shall remain in the custody of the shipper until they have been examined and tested with tuberculin and pronounced to be free from disease by an approved inspector. These inspections are made at the expense of the owner, but

the tuberculin is supplied by the Board. Tags, which are lettered and numbered serially, are also supplied for marking cattle which pass inspection. The inspector is required to give a full report of the tuberculin test, the conditions under which it was made, the physical condition of the animals, and the letter and number of the tag attached to each animal in his certificate, and he must also make affidavit to the statements. Any cattle found to be tuberculous are placed in quarantine and, if the owner wishes, can be slaughtered for beef under inspection. Formerly, upon application of the owner, a permit was issued to ship such animals back to the point of origin, and notice was given of the shipment to the livestock sanitary authorities of the state from whence they came, but since last November, when the Secretary of the United States Department of Agriculture issued an order forbidding the interstate movement of cattle and swine affected with tuberculosis, no such permits have been issued. Animals giving an indefinite reaction are placed in quarantine for a retest, which is usually made at the end of three weeks.

Since this law went into operation herd owners applying for tuberculin tests, or for assistance in disposing of cattle which have reacted to a private test, have been required to certify that there are no animals in the herd which have been brought into Pennsylvania from another state without inspection and tuberculin test since January, 1898.

This law has been found to work quite satisfactorily. It has met with little opposition from shippers and it has caused dealers to use all possible care in purchasing cattle for shipment into the state. Since it has been in operation cattle have not been purchased in such large numbers as formerly in those districts where tuberculosis is most prevalent, but while shipments from these districts have decreased there has been a relative increase in shipments from other localities, so that there has been no effect on the total number of shipments. Tagged cows have come to have a distinct market advantage in many sections of

the state. In one shipment of 20 head from a neighboring state inspected last week 11 cows reacted. It is a common custom for milk cows to be shipped into Pennsylvania in carload lots and sold at public sale to individual buyers. The damage resulting from infected animals in such shipments would therefore be more widespread than if all the cattle went into one herd.

The lack of official supervision of inspections made outside of Pennsylvania has led to some unsatisfactory results. Some control over these inspections is given to the Board by the provision requiring that the inspector must obtain a certificate as to his competency and reliability from the livestock sanitary authorities of the state from which the cattle are shipped. This affords protection from incompetent and untrustworthy men when proper care is exercised in issuing such certificates. But even a capable and conscientious veterinarian, employed by a man who is perhaps one of his regular clients to examine and tuberculin test cattle to be shipped to a stranger in another state, is not unlikely to look at the proceedings from the standpoint of the seller and to decide in his favor any doubts regarding the condition of the cattle. It would be much more satisfactory could these inspections be made by inspectors appointed by the livestock sanitary authorities of the state and who had been given to understand that their continued employment in such work was entirely contingent upon the inspection being carefully and properly made. The expense of such a system of inspection would be exceedingly slight compared with the benefits resulting to those states producing cattle in excess of their needs. It would attract buyers from other states and would thus be a distinct advantage to herd owners with cattle to sell; it would also afford the livestock sanitary authorities a means of obtaining information concerning the location and extent of tuberculous infection, and, most important of all, it would insure a proper disposition of reacting cattle. Under the present conditions we have no knowledge or control over the cattle that react to the tests made outside of the state.

6. Indemnification for Cattle Condemned as Unsuitable for Food on Account of Tuberculosis.

Considerable assistance in the control of tuberculosis is afforded by a law passed by a legislature in 1903, which authorizes the payment of an indemnity to butchers, or others, for cattle slaughtered for beef and found to be unsuitable for food on account of tuberculosis. The effect of this law is to encourage the removal of suspected animals from a herd and their slaughter for beef under proper inspection rather than their sale to another herd owner; furthermore, it encourages butchers to request inspection of diseased carcasses and prevents diseased meat from going into the market. Sausage in various forms is extensively manufactured by the small butchers in Pennsylvania and cows find a ready sale for this reason.

Before any indemnity is paid for condemned carcasses under this law, the butcher, or the owner of the animal at the time of slaughter, is required to submit a statement of claim containing a certificate of inspection, condemnation, and valuation signed by the inspector and a statement showing that the animal has been continuously in the state for at least four months previous to the time of slaughter. All statements regarding ownership must be sworn to and the butcher or the last owner must also state the amount paid for the animal. The amount of the appraisement in such cases cannot exceed five cents per pound nor more than $25.00 for a carcass.

7. Dairy Inspection.

The inspection of dairy herds in co-operation with local Boards of Health affords another means of discovering cattle in which the disease is manifested by physical signs and enables the Board to arrange for the proper disposal of these dangerous cases.

8. Inspection of Animals Slaughtered for Food and Control of Slaughter House Sanitation.

The State Meat Hygiene Service, while designed primarily to insure a wholesome meat supply, also assists in the control

of tuberculosis in animals, as well as of other diseases, by causing diseased carcasses and organs to be rendered or destroyed. In the course of this work it has been discovered that the feeding of tuberculous flesh and organs in the raw state to swine has been a prolific source of tuberculosis in these animals. In one lot of forty-eight hogs which had been fed on offal and other slaughter house refuse in the raw state nine died and when the other thirty-nine were slaughtered under inspection it was found that all but one were affected with tuberculosis and in sixteen the disease was extensive and generalized. The custom followed in forbidding the use of milk from cows found to be tuberculous unless it is pasteurized or sterilized has also assisted in preventing the dissemination of the infection among swine as well as calves.

It should not be concluded from the efforts made in Pennsylvania to control tuberculosis in cattle that the disease was more prevalent in this state at the time this work was instituted than in other states with large dairy districts and receiving their supply of cows from other localities. As has been stated, portions of the state where cattle were raised in sufficient numbers to meet local needs and into which few cattle were shipped were entirely free from the disease.

There are no statistics available to show the number of tuberculous cattle in the state when this work was begun, nor do we know the exact number of tubercular cattle in the state at this time. Consequently, it is not possible to tell by comparison exactly what has been accomplished. But slaughter house inspections, observations by veterinarians on herds within the circle of their practice, and information from herd owners and cattle dealers furnish strong circumstantial evidence that the number of infected herds in Pennsylvania has been considerably reduced and that the prevalence of tuberculosis in infected herds has been still more diminished.

By means of refrigeration America is able to supply the world with meats.

FIFTY HORSE SHOEING RULES.

By Samuel Burrows, V. M. D., Cleveland, Ohio.

1.—Before pulling off any shoes, have the horse jogged in a straight line, and note the method of carrying and setting down of the feet, as he is jogged from and toward you; also as seen from the side. Or any other peculiarities or faults, the knowledge of which would give the shoer a more intelligent idea as to how the horse *should be shod.*

2.—Notice if all the feet appear the same length, if one heel is higher or lower than the others, or if one toe is longer or shorter than the rest.

3.—Before pulling off each shoe, preparatory to dressing the foot, note particularly how each shoe is worn, if it is worn more on one side than the other. If the toe is well rounded, or worn through. Also the weight and kind of a shoe, length of the branches, or if the shoe is pushed over to one side.

4.—Do not attempt to pull off a shoe, until each clinch has been cut or straightened out.

5.—Any nails that have been left in the foot, pull out in the same direction in which they were driven, and not through the side of the foot.

6.—Before commencing to trim each foot, satisfy yourself first, as to how each foot should be dressed,—because.

7.—When a hoof has been trimmed uneven, i. e., the toe, heel or one whole half of the foot has been lowered too much, it often takes one, two or even more months to correct our mistake.

8.—If the feet appear short, in proportion to size of the fetlock, do not rasp away any horn, except to remove any unevenness on the bearing surface of the foot, necessary to make a level bearing for the shoe.

9.—In dressing a foot, first remove the dead horn from the sole.

10.—There is no harm in removing all dead, dry horn from the sole, except where horses are used in a rough stony country.

11.—The part of the sole which appears oily or cheesy in consistency, is the live sole and should not be cut away.

12.—The bars should be left to project a little above the sole, —not gouged out, as is the common practice.

13.—Do not cut a good healthy frog.

14.—It is quite proper, to cut away parts of the frog, in the following conditions:—

a.—When there is a foul smell, indicating thrush, and then, only the parts directly involved.

b.—Where there are loose ragged parts, which help to retain filth. These may be trimmed down to the solid frog.

c.—Where the frog is too prominent, dry and hard, as seen in large flat feet with low heels. Such frogs should be shortened, especially the body, which lies directly over the navicular joint.

15.—Do not "open up the heels," except in contracted feet. In such feet, we usually find a spur of horn, projecting inward, as a continuation of the buttress, which crowds in upon the frog, from both sides of the heel. This spur only should be cut away.

16.—The natural angle, formed by the turning in of the wall to form the bars, and known as the buttress, should not be weakened by cutting.

17.—In shortening the wall, shorten it to the edge of the sole.

18.—The bearing surface for the shoe, should consist of the wall, white line and about one-eighth of an inch of the sole.

19.—After the bearing surface of the foot has been made level, file off the sharp border around the edge of the foot. The amount necessary, depends upon the slant of the wall, width of the foot, and increases as the slant of the foot increases. A slanting wall which is also "dished" or concave, requires the sharp edge filed off, almost to the white line.

20.—The foot should then be taken forward on the shoer's knees, and the wings if any, filed off, and the wall left straight and smooth. This should always be done, before the shoes are fitted or nailed on. If the shoes are then fitted out full to the edge of the foot, such a foot when shod, will not have the appearance of being "dubbed off" and the foot having been made to fit the shoe.

21.—A foot is not always level, when the distance from the hair to the lower edge of the hoof, is the same on the outer and inner side.

22.—The coronet on the inner half of the foot is very often forced upward; by the inner half of the foot being cut too low, for a long period of time, and thus receiving more than its share of weight.

23.—Hence, the inner and outer measurements from the hair to the ground are misleading. This practice appears to be followed by a great many horseshoers.

24.—A foot is considered level, when its shoe is worn level.

25.—An old shoe showing equal wear from heel to heel, shows us that the jar and weight has been equally distributed to all parts of the foot and leg at the same time, with every step taken, and that the shoer, with this particular foot or horse, has obtained what should always be his aim with every horse he shoes—a perfectly level foot.

26.—That part of the hoof corresponding to the part of the shoe showing the greatest wear is always too long. That part of the shoe may also be too near the centre of the foot. The extra wear, is due to the fact, that the longest part of the hoof strikes the ground first.

27.—When dressing a foot, always lower that part of the hoof, corresponding to that part of the shoe, showing the greatest wear. There is no exception to this rule.

28.—Sometimes we find cases where the inside of the foot is extremely low, when compared with the outside. Where the outside of the shoe is worn as thin as a knife blade, and the nail heads on inner branch, still projecting beyond the shoe. At

the same time, instead of the inside of the foot slanting down and out, or at least perpendicular, we find it slanted down and inward; while the outside is slanted down and out, more than it should be.

To correct this condition, it is necessary to lower the outer half of the foot for several shoeings, and permit the inside to grow undisturbed. At each successive shoeing, with the feet dressed as above—say, once every four weeks, we will notice the following changes taking place:

1st—A narrowing of the outer half of the foot and a lessening of the external slant.

2nd—A widening of the inner half of the foot, lengthening of the inner wall, and the consequent changing of its slant, from down and in, to down and outward.

3rd.—A more even wearing of the shoe. This temporary narrowing of the outer half of the foot, is overcome by making a special shoe, which should project beyond the outer edge of the foot, to where the hoof ought to be. The nail holes are of course punched deep, so that the nails will enter the white line. When we notice both branches of the shoe wearing nearly level, as the horse commences to put his feet more squarely to the ground, we will notice that the outer half of the foot begins to widen out and assume a more normal shape. As this widening progresses, the extension of the shoe beyond the outer wall, can be diminished, until we finally get back again to a regular shoe.

29.—The best indication of a correct angle of any foot, is when the bones of the fetlock, seen from the side, form a straight line with the wall at the toe, while the horse is standing squarely upon all four feet. Lowering the heels, straightens and raises the fetlock, and causes the foot axis or the line through the fetlock to be broken backwards. Shortening the toe, or raising the heels, lowers the fetlock and causes the foot axis to be broken forward.

30.—In selecting a new shoe, choose one which is most adapted for that particular horse's foot, and the kind of work it has to perform.

31.—Wide, flat front feet, require a well concaved shoe with a wide web.

32.—Heavy shoes, as a rule, do not last as long, nor stay tight as well as lighter shoes.

33.—Always shoe a horse with flat shoes in front, if their work and character of the roads will permit it.

34.—The bearing surface of all shoes, should be perfectly level, especially at the heels.

35.—The nail holes in front shoes, should not be placed nearer the heels, than the middle of the shoe.

36.—In hind shoes, nails may be placed two-thirds back toward the heels.

37.—The nail holes should be punched deep enough, so that the nails will enter the foot at the white line, when the shoe is fitted out flush with the hoof. The nail holes ought not to be punched any larger, than is required for the smallest nail, necessary to hold any given shoe to the foot.

38.—Should a shoe be fitted hot or cold? Hot fitting appears to have more points in its favor, than cold fitting. I do not mean a red heat, but sufficient to scorch the horn. A cold fitted shoe to fit the foot perfectly, so that the wall and shoe are in close contact from heel to heel, requires a great amount of skill and time, and if not properly done, the good—if any, derived from a cold fitted shoe, is turned to harm. It is not impossible, but the difficulty and uncertainty of having it done properly, makes hot fitting by far the safest and best for general shoeing, if not carried to extremes. With a hot shoe, it is possible to locate unevenness both in the foot and shoe, and renders it possible in a very short time, to make the bearing surfaces of the hoof and shoe fit so perfect, that the shoe practically becomes a natural continuation of the hoof. Also when necessary to

change the shape of the shoe during fitting, it is done much easier, quicker and better, than with a cold shoe. In special cases, as in pumiced feet, flat feet with thin soles, or feet worn short by going bare foot, cold fitting should be used in preference to hot.

39.—In fitting shoes, they should be heated evenly to a "black heat" and held in place on the foot, until the parts in contact become scorched. The prominent parts can be rasped level, much better, than by cutting away with the knife. If the shoe is perfectly level, the placing of the shoe against the foot and the rasping down of any unevenness, should be continued, until the shoe scorches the horn evenly from heel to heel.

40.—When the shoe is taken back to the anvil, and considered "fitted" to the foot, it should be immediately cooled off. Do not try to make the shoe a little wider, or narrower; close the inside heel and widen the outer one, level it a second time and then cool it off. This is wrong, and undoes the work already done.

41.—Toe and side clips, are a great aid in keeping shoes in place, and preventing them from becoming loose. Basewide and toe-wide horses, require shoes with side clips—or any horse, that strikes the ground with the outside of his feet.

42.—A line drawn longitudinally through the centre of the foot—cutting the frog into equal halves, gives us its centre of gravity. The nearer the branch of a shoe is to this line, the more weight it receives.

43.—The branches of shoes for draught horses, should be long and wide enough, so that when a perpendicular line is dropped from the bulbs of the heels, it will touch them at all points. Front shoes of driving and saddle horses, must of necessity be shorter, to prevent their being pulled off with the hind feet.

44.—In nailing a shoe to the foot, use as small nails as is consistent with the weight of the shoe, size of the foot and quality of the horn.

45.—Drive the nails high enough, so that when they have been drawn down and clinched, there is plenty solid horn between the clinch and the shoe.

46.—More care is required in driving nails in the inner half of the foot, as the horn is naturally thinner than on the outside; it is also made still thinner, by fitting shoes close and rasping away the horn, to prevent interfering.

47.—When all the nails have been driven, commence at each toe nail, working toward the heels, and strike two or three solid blows over the head of each one, to fix them firmly in the holes.

48.—Hold a small iron block or pincers, above the free end of the nails, strike the head of each one, until the ends are bent over firmly against solid horn.

49.—In clinching the nails, don't file a deep groove in the horn below the part to be clinched. File the end of each nail quite short, lay the rasp flat against the foot, and with its upper edge, file away the little shoulder of horn, which has been bent over with the nail. Holding the iron block or pincers under each nail head, hammer down the free end—drawing it tighter with each blow, until the clinch is level with the surface of the foot.

50.—When finishing a foot after clinching, run the rasp in the same direction as the horn tubes. Don't rasp above the clinches.

WITHOUT HORNS.—A clergyman was an important witness in a horse dealing case. He gave a somewhat confused account of the transaction in dispute, and the cross examining counsel, after making several blustering but ineffective attempts to obtain a more satisfactory statement, said:

"Pray, sir, do you know the difference between a horse and a cow?"

"I acknowledge my ignorance," replied the reverend gentleman. "I hardly know the difference between a horse and a cow or between a bull and a bully—only a bull, I am told, has horns, and a bully"—here he made a respectful bow to the advocate—"luckily for me, has none."

GASEOUS DISTENSION OF THE EQUINE STOMACH.*

By Richard P. Lyman, B. S., M. D. V., Secretary American Veterinary Medical Association.

A study of the titles to the contributions your able Secretary has so successfully gathered within the little brochure announcing this literary feast, would infer that it was my purpose to inflict upon you a discourse covering at least a volume of manuscript dwelling upon the multiplicity of painful abdominal disorders or disturbances, to which our faithful, ever-willing, and uncomplaining friend, the horse, is heir. Before such a fatal first impression becomes unalterably fixed, permit me to dispel your fears by promising to confine myself more especially to that grave, though frequent affliction, acute gastric digestion, which we will consider under the nomenclature, "Gaseous Distension of the Equine Stomach," fully realizing the foolhardiness of attempting to treat the far-reaching scope of the general term "Equine Colics" as announced.

The mention of the term colic in relation to gastric indigestion, naturally calls for some explanation, for we must acknowledge that its true interpretation derived, as it is, from the latin word "colicus," signifies a painful or abnormal sensibility of the colon, but, also that custom has lent to it a broader significance and that the term is used to distinguish a number of widely different conditions, having as a predominating or prominent expression, evident intestinal pain. Admitting this then to be its widest interpretation forces me to attempt to give it even greater latitude and for competent reasons, ask that you include among the true colics, ailments arising within the stomach expressed by symptoms closely allied to those consequent upon lesions confined to the intestinal viscera and which not only call for discriminating but a painstaking differentiation.

*Presented to the Annual Meeting of the Missouri Valley Veterinary Association, Kansas City, February 2-3, 1909.

There is possibly no disease or class of diseases of the horse more frequently presented to the practicing veterinarian than those expressions of pain which are especially consequent upon a morbid state of either the stomach or the intestines, and classified under the term colic or abdominal pain; even so, it would seem pertinent to call attention to the fact that many of the so-called, painful colicky expressions are due to pathological changes in some other organ or part and, indeed, not invariably confined to the abdominal cavity. For purposes of differentiation, these pains are styled "false colic" and are associated with varying stages of such morbid conditions as pleurisy, azoturia, affections of the urinary or genital organs, enteritis, diseases of the liver, peritonitis, and also the colicky pains associated with certain specific diseases, as petechial fever.

An irresistible scientific trend has long since exploded the older belief that colics were either spasmodic or flatulant and, though the expressions of abdominal pain attributed to true colics, on the other hand, have a line of symptoms that are on the whole allied, we have learned to appreciate the lack of identity and multitude of possible pathological changes, knowing full well that some pains are due to simple while others are associated with complicated lesions.

This knowledge, stimulated by a desire to control a heretofore embarrassing mortality, has demonstrated the absurdity of attempting to intelligently treat all colics alike, and has naturally led to a more or less classified differentiation into colics of engorgement, of obstruction, colics resulting from gas accumulation, spasmodic colic, and those resulting from parasitic invasion (verminous colics).

Among that group styled gas accumulation colics is gastric tympany by no means a rare affliction in the horse, which usually arises as a result of dietary errors. Not only are we to here include sudden food changes, improperly cured food, food innutritious in character, or over-indulgence, but likewise errors arising consequent upon failure to consider debilitated digestive

functions caused by existing or previous illness, and overwork, which very naturally serve as energetic factors. To food irregularities also needs be conjoined errors in watering or dirty water.

With an acknowledged previous digression, I feel constrained to again impose upon your good nature long enough to briefly picture the relations of the parts especially involved, but this without delving into the intricate realms of physiology and anatomy. The stomach lies diagonally across the median line, a little to the left immediately posterior to the diaphragm, and liver, above the spleen, and double colon (never in direct contact with the abdominal wall), with the cardiac end somewhat anterior where the junction of the oesophagus, after passing through an opening in the diaphragm, takes place. The cardiac opening, towards the right, formed by the peculiar structure of the inner lining of the gullet previous to its spreading out over the anterior inner surface of the stomach, is so peculiarly constructed as to allow the entrance of food in a downward direction only.

This, so to speak, oesophageal obstruction associated with the trap-like curvature of the duodenum, is unquestionably a consequent cause of the gravity of this malady which is especially characterized by fermentation and gas accumulation within the stomach; the resulting enormous distension and pressure from the imprisoned gas produces local nerve irritability, anaemia and even at times, fracture of the gastric walls (so-called ruptured stomach) or diaphragmatic hernia. Upon post-mortem examination is found an enormously distended stomach (perhaps ruptured) undigested food either confined within the gastric walls or free in the peritoneal cavity. The blood vessels throughout the body, both veins and arteries, aside from those of the stomach, are engorged, filled with dark or bluish-red, only partially coagulated fluid; especially so if death has resulted from asphyxia or lack of proper blood oxidation. The lungs present evidences of passive hyperaemia and right heart engorged. The gases generated as a result of this fermentation are variously

proportioned amounts of carbonic acid, nitrogen, hydrogen sulphide, and carburretted hydrogen.

Symptoms.—Beginning often with slow grinding pains, that generally increase in intensity, or again, starting with sudden acute manifestations, the patient exhibits signs of restlessness, a constant desire to move uneasily about, pawing, looking at one or both flanks uneasily up and down, rolling, tremors of the superficial muscles, more particularly about the flanks or caput region. The pains rapidly become very acute, the abdomen looks full, animal often throws itself madly about. Sometimes crouching as if to lie down, but remains on its feet to begin again the constant walk. If down often note the tendency to rise upon the forelegs, assuming a dog setting posture. There is an anxious look from the eyes, nostrils dilated, head raised and upper lip elevated, showing the superior incisors, and upper labial mucous membrane; belchings of gas are frequent, salivation and in severe cases a prune juice nasal discharge is quite constant. The breathing becomes accelerated and see-saw like; pulse though primarily strong, grows weak and exceedingly rapid. The body is early bathed in perspiration, which generally becomes patchy and associated with cold extremities. Without relief these symptoms offer grave elements of danger and course rapidly on; the nasal discharges at times becoming an actual vomit, oesophageal gurgling is noticed, gait uncertain, and the sufferings are terminated by death in suffocation or, when prolonged, end fatally through rupture of the walls of the viscera or by nervous collapse.

Diagnosis.—Cognizant of these detailed expressions of pain which I have taken the liberty to present freshly to your minds we have, if they are associated with a rapidly eaten meal, especially if upon a tired or empty stomach, grounds for establishing a diagnosis, particularly if accompanied with certain of the already mentioned symptoms as keynotes of differentiation, namely —inclination to crowd forward when attempts are made to raise the patient's head, sobbing, catchy expirations, gulping foul-

smelling ejected gas, associated at first with particles of ingesta which have accumulated in the lower portion of the oesophagus from inability to enter the distended stomach; later a prune juice discharge and finally inability to relieve the bloating to any great extent upon the application of trocar and canulae. Though having given in a general way a résumé of this disorder, it must be acknowledged, especially in those cases characterized by sluggish onset, than an early administration of anodynes, or such treatment as is all too frequently resorted to by the unskilled attendants oftentimes temporarily masks the true ailment leading to errors in diagnosis, and permitting a correct interpretation of the trouble only after the poor horse has grown rapidly worse and at a time when the most exacting and prompt recognition of the ailment is imperative.

Already lengthened beyond my early purposes, I feel constrained to hastily summarize the therapeutic indications of this disorder. Forced to the conclusion that the disturbance is mainly a result of the accumulation of gas and that this latter is due to delayed digestion and abnormal fermentation efforts for relief needs be based upon measures tending to overcome these conditions. Not infrequently indeed does the practitioner find, when observing his patient for the first time that the gravity of the expressions call for immediate and heroic action if a fatal termination is to be avoided. At this time puncture of the abdominal viscera renders little if any benefit, rectal injections give but slight, if material relief, though they may tardily aid in lessening the tension. Again, at this moment in the opinion of some is especially indicated the application of the stomach tube; this, true enough, when successfully passed into the stomach either through the left nostril or possibly better by way of the securely closed mouth affords a ready escape for the accumulated gases and likewise acts as an efficient passage for preparations indicated to overcome any subsequent fermentation. Its practicability, however, is a much mooted question, and has not by any means become extensively adopted.

Failing by mechanical means to remove the accumulated gas medication is indicated and may possibly be so balanced as to serve both as an absorbent and an antifermentative. For such purpose capsules of formalin and turpentine appear to be especially efficient and may with advantage when deglutition is possible be followed by frequent though small drenches of aromatic spirits of ammonia to which latter, if desired, is added an anodyne mixture (not opium), to allay the dangers consequent upon violent expressions of pain. If peristaltic murmurs are not greatly lessened, the hypodermic administration of a mixture of eserine, pilocarpine, and strychnine, or the arecolin, hydrobromide are oftentimes advantageous through stimulating peristalsis and tending to diffuse the gases.

Naturally the pharmacopeia contains many similarly acting preparations which have been tried with efficient results; time however precludes the advisability of entering into a lengthy discourse upon this phase of gastric distension other than to emphasize the line of treatment seemingly indicated.

Vacation for Horses.—Uncle Sam will hereafter allow 30 days' vacation a year to the Post Office Department horses in Washington. The animals are to be sent, a few at a time, to a fine, rich pasture in Maryland. "Every employee of the Government," says the chief clerk in the Post Office Department, "receives 30 days' sick leave, if necessary. I see no reason why the horses we use in the business of the department ought not to receive a rest, or a vacation, and hereafter I am going to send each of the horses away for a 30-day period of rest. We can spare many of them in the summer, and this is the time they will appreciate a rest from the hot asphalt and welcome the green grass of the country and the shade of the trees."

Cows and Farm Fertility.—Prof. E. B. Voorhees of the New Jersey Experiment Station has figured it out that a single well-fed cow will produce in a year 107 pounds of nitrogen, 87 pounds of phosphoric acid and about 87 pounds of potash. At this rate it is easy to see why dairy cows are such a powerful factor in increasing the fertility of the farm, when the manure is properly cared for.

GLANDERS.*

By D. McKenzie, Professor of Surgery, Contagious and Infectious Diseases, McKillip Veterinary College, Chicago.

I offer for your consideration the subject of Glanders. Considering that all present are veterinarians of varied ability and experience, I do not consider it necessary to go into this subject minutely and from every viewpoint. I shall confine myself to the prevalence of the disease and its diagnosis. This malady is widespread and is found in all countries where the horse, mule, ass and man are found associated. It is found in every state and territory of the union, and its control is not as complete and satisfactory as it should be. This is particularly true in the large centers of population. We know there are many difficulties confronting the suppression of the infectious diseases especially when distribution of the animal is the method employed and when diagnosis is not positive as it is in many cases. The sad result of these difficulties is that the disease is perpetuated from year to year, and from my observation glanders is not disappearing as rapidly as the casual observer may think. I believe that the latent form of glanders is as prevalent as it was ten years ago. This is probably due to the fact that the horse is becoming more or less immune and is more able to resist acute attacks while at the same time he distributes the disease broadcast. We have reason to believe that some such process is in operation when we look at the newspapers and medical journals and find that within four months no less than five cases of glanders are reported in the human family with four fatalities. The positive diagnosis of such a disease is necessary from two principal viewpoints, 1st as a public safety and 2nd in order to insure the owner against unnecessary and arbi-

*Read before the 26th Annual Meeting of the Illinois State Veterinary Medical Association, Chicago, December 1, 1908.

trary loss. We believe that no man is justified in destroying the property of another unless he is positively certain that his animals are suffering from some disease that is a menace to himself or the public. So far as the clinical manifestation of glanders is concerned we do not think that any veterinarian of to-day would risk his reputation by making a positive diagnosis, therefore we will dismiss sings and symptoms, except for their value in arousing suspicion, but when once suspicion is aroused the most careful and critical examination should be made whether it be in the acute or chronic form.

Owing to the fact that many other diseases which resemble glanders from a clinical viewpoint and also that acute glanders in the later stages will not react to the Mallein test owing to devitalization of the tissues we are forced to believe that some other means should be employed. We therefore conclude the next and only reliable method by which the acute form can be positively recognized is by cultivation, isolation and microscopic examination of the bacillus Mallei.

We now turn to the diagnosis of the chronic form. It being practically impossible in the vast majority of cases to find the organism we must put greater confidence in the Mallein Test, which will be reliable in 90 per cent. of all cases of chronic glanders, therefore all animals suspected of suffering from this form of the disease should be tested with Mallein and even if they give a positive reaction they should be kept under observation and in quarantine until the organism can be determined by cultivation, isolation, inoculation or by microscopic examination. It is interesting to note that Mallein may become a curative agent. It is believed by many that repeated inoculation of Mallein has a tendency to obscure the clinical signs of glanders, while others believe it is a curative agent, but many reputable veterinarians hold that the cases which cease to react under repeated injections were not glanders at all. If this latter statement is true then Mallein is not a reliable diagnostic agent, but since the vast majority of veterinary practitioners and different

state laws regard it as a satisfactory and legal test it seems to carry the preponderance of evidence, therefore we are forced to the conclusion that Mallein contains substances which are destructive to the bacillus Mallei. We know that Mallein is an extract of the bacillus Mallei and its products; are we not justified therefore in believing that when this substance is injected into the body of the infected animal that it would prove destructive to the organism which elaborates it. We know that all other forms of life are destroyed by their katabolic products; it is a fair scientific deduction therefore that bacterial life is no exception to the general rule.

Light from Bacteria.—Much of the light commonly known as "phosphorescent" is due to living organisms, generally to microscopic plants or animals. Such is the phosphorescence of the sea and of decayed wood. Among the microorganisms capable of giving out light as an incident of their life-processes are certain bacteria. On one species a number of interesting experiments have recently been performed by Professor Molisch, of Prague. According to this authority, the light is due to a substance secreted by the organisms, which becomes luminous in the presence of oxygen and water. By cultivating innumerable colonies of these bacteria side by side Professor Molisch has made what he calls a "perpetual lamp," with whose light he has been able to take photographs.—(*Arthur E. Bostwick in N. Y. Herald.*)

The Shapes of Eggs.—Professor D'Arcy Thompson recently entertained the Zoological Society of London with a mathematical discussion on the differences in the shapes of eggs. A few eggs, like those of the owl and the tortoise, are spherical, or nearly so; a few, like the grebe's or the cormorant's, are elliptical, with symmetrical ends; the great majority, like the hen's, are ovoid, or blunter at one end than the other. The hen's egg is always laid blunt end foremost. Eggs which are the most unsymmetrical are also eggs of large size relatively to the parent bird. The yolks of eggs are spherical, whatever the form of the entire egg may be. This Professor Thompson showed to be due to their being inclosed in a fluid, the "white," which makes the pressure everywhere on the surface of the yolk practically constant.—(*Youth's Companion.*)

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

FIBROMYOMA.

By J. J. Richardson, Veterinary Surgeon, Alta, Iowa.

On April 20, 1906, I was called to see a five-year-old bay mare, suffering from diarrhea of a very fetid character. She had colicky pains, lying down and getting up quite frequently. Her pulse was 60. Owner said she had diarrhea for several days, but as she had been eating a little he was not alarmed until she began throwng herself about the stall. I examined the patient carefully, gave two or three medicated enemas, and as there were no more feces, I came to the conclusion that there was something blocking the passage. I explored the rectum with the hand, and found it empty so far as I could reach. I then gave a dose of eucamphol and occasionally another medicated enema. I remained all afternoon and she was some better in the evening. When I left I gave instructions to the attendant for the night. Some time during my absence she passed a large tumor, which the owner preserved for my inspection on my arrival the next morning. I placed it in a sealed jar and sent it by express to Ames for microscopic examination. In due time I received a reply from Prof. A. Stuhr saying he had examined the tumor which I had sent to the laboratory and found it to be a fibromyoma. It being a benign tumor it showed but slight tendency toward recurrence. This variety of tumor is quite common in the gastro intestinal tract, and very frequently is multiple. It is probable that the animal from which this one was obtained harbors more of them. They are not dangerous to life except in so far as they may act as mechanical obstructions. Degeneration may take place within them, the absorption of which products may give rise to disturbance of nutrition, but this is not common. After I received the report I put her on potassium iodide, and I may say just here that there was another small tumor passed some time afterward. She was sold on the 27th of December and I lost sight of her.

EPIZOOTIC LYMPHANGITIS.

Cases of Dr. S. R. Howard, Hillsboro, Ohio.

Views reproduced from photographs taken by Dr. Paul Fischer, State Veterinarian of Ohio.

Fig. 1.

FIG. 2.

INDIGO TREATMENT FOR POLL-EVIL AND FISTULOUS WITHERS.

By Dr. B. C. Eldredge, Swanton, Ohio.

Presented to the 26th Annual Meeting of the Ohio State Veterinary Medical Association, at Ohio State University, January 12-13, 1909.

About a year ago I was advised by a brother practitioner to try the use of indigo in the treatment of poll-evil and fistulous withers. He informed me that by giving a sufficient amount of indigo the enlargement would be gradually absorbed and the discharge (if any) would dry up, the cavity heal and the afflicted parts be brought to a normal condition. This seemed too good to be true, but I resolved to try it at the first opportunity. The results are as follows:

Case I.—A black gelding eight years old suffering from poll-evil and fistulous withers. I had known this horse for about eighteen months and he was afflicted in this way when I first saw him. I immediately began giving him indigo, with enough powdered charcoal to disguise, in heaping teaspoonful doses, three times a day, and to my surprise, in about four weeks I could see a big improvement. I continued the treatment for ten or twelve weeks when the horse was completely cured.

Case II.—A bay horse twelve years old with poll-evil had been affected only three or four weeks. I immediately put him on the indigo treatment and in six weeks time he was smooth as ever.

Case III.—A brown mare, eight years old, had been turned in an orchard and bruised her withers by rubbing against the limb of a tree. There was an enlargement on each side—had been there about two weeks when I began treating her. When she had taken 1½ pounds of the powders the enlargement on the left side was entirely gone and but very little enlargement on the right side. The owner then sold her and she went out of my reach so I cannot positively say that her recovery was complete.

Case IV.—A sorrel horse, ten years old, with fistulous withers, had been affected for three or four months. He had been lanced in two places on each side and had been treated with acids and all other remedies that the neighbors could advise. Upon examination I found that there was a cavity extending from just in front of the back pad to the front of the collar on each side. The openings that were in were well toward the front of the cavity. I made another opening in each side close to the back of the cavity and gave indigo and in six weeks had the case cured. I have treated four other cases with equally successful results.

ARMY VETERINARY DEPARTMENT.

PRESENT STATUS OF THE ARMY VETERINARY BILL.

At this writing (February 17) it seems almost certain that the Bill "To increase the efficiency of the veterinary service of the Army" (H. R. 11790), will fail to pass the House of Representatives. It is blocked in the House Military Committee, as the Chairman of the legislative Committee, A. V. M. A., informs us.

Although this Bill passed the Senate during the last session, it encountered forthwith obstacles in the Military Committee of the House. At first it met the opposition of several of our army veterinarians who had become disabled in the service, because by the provisions of this Bill they would have been coldly thrown them out of the army without pension or retirement. By the successful effort of Dr. Turner, chairman of our legislative committee, an amendment to the Bill was approved by the Secretary of War, on January 15, 1909, remedying this oversight in the Bill, and Mr. Hill, chairman of the House Military Committee, was urgently requested by the Secretary of War to have the Bill passed as amended.

However, new obstacles seem to have come up, unexpectedly to be sure, but of such a nature that no further hopes are entertained for its passage. When this Bill will have been officially declared as dead by the adjournment of the present Congress, we shall make some remarks on the causes of its failure.

O. S.

Apt.—Frank Lincoln, an American entertainer and humorist, had been appearing in London for a time in a monologue. One afternoon he had just made his bow and was about to begin when a cat walked in and sat down on the stage. "You get out!" said Mr. Lincoln, severely. "This is a monologue, not a catalogue."—(*Chicago News.*)

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M. D., V. M.

A Case Treated by Bier's Method [*W. Hunting, F. R. C. V.S.*].—The patient was a big brown gelding that had been lame for some weeks on the off hind leg. This was much swollen up as far as the upper part of the fetlock and not so much to the hock. There was a suppurating wound in the heel with synovia escaping from four or five wounds, mixed with pus. Warm water and antiseptics, blisters and so forth had been applied but without results. The horse was still lame to such an extent that the toe of the foot was hardly allowed to touch the ground. The author suggested Bier's treatment. Four feet of india rubber cord about three-eighths of an inch in diameter was wound round the leg above the hock, like a tourniquet but not so tight. It was, in fact, only applied with slight firmness and left on for two hours each of the first four mornings. In eight days, all discharge had ceased, the wounds were healed, pain and lameness had subsided. The local effects of the rubber bandage was to increase the swelling in the leg at first and the marks of the constriction could be seen for some days after the treatment was stopped.

The result was an uninterrupted recovery and very little permanent enlargement left, the treatment deserves further trial.—(*Veter. Record.*)

Effects of a Solution of Magnesium Sulphate on the Trachea and Bronchia [*E. W. Hoare, F.R.C.V.S.*].—A dose of Epsom salts is ordered by the owner for a Scotch terrier dog, suffering from some imaginary trouble. While taking it, the dog struggled considerably. Immediately after the medicine had been given, the dog began to breathe with difficulty, made attempts to vomit and uttered piercing shrieks. He is soon in a semi-comatous condition and completely paralyzed. Inhalations of steam medicated with terebene were administered and fol-

lowed by relief. The dazed condition gradually passed off and the next day the dog was able to walk. He then rapidly recovered. No bronchitis followed. He had taken about two drachms of salts in a glass of water.—(*Ibid.*)

Disease of Nasal Meatus [*By the Same*].—When bought by the present owner, this aged pony mare had two small openings on the face, one on each side, about the outer border of the nasal bones. They have been there for months and discharged at intermittence a fœtid pus. A probe run in both and on the off side could be passed in the inferior maxillary sinus. Both openings were enlarged with the trephine and irrigated daily with antiseptic solution and filled with iodoform. The irrigation passed through the nostril on the off side. After four weeks of treatment, the discharge had stopped from both sides and the openings were left to close. Some time later, however, that is recently, it was reported that a slight discharge was returning from the near side.—(*Ibid.*)

Clinical Notes, Gastrotomy in a Dog [*H. A. W.*].—Record of a seven-months-old St. Bernard puppy which had a swelling about the size of half an orange, in the left side. It is threatening to point between the last two ribs. The presence of a foreign body in the stomach was suspected. It was reported that, indeed, some three weeks before, the dog had stolen a joint of meat and devoured it; possibly having swallowed also a meat skewer. The dog, however, had never shown any affect from this. He as operated. Abdomen open, stomach exposed; opened with a small incision, and a metallic skewer 6½ inches long was removed. The edges of the stomach were then inverted and brought together with Lembert's sutures. The abdominal walls and finally the skin were sewed and the animal ordered to be fed only with nutrient enemas for three or four days. Nothing by the stomach. Recovery was uneventful.—(*Veter. News.*)

Amputation of the Uterus in a Cow [*Sampson Bennett, M.R.C.V.S.*].—This short-horn cow has her third calf. Each time the delivery has been very easy; but in this last, she delivered during the night and in the morning it was found that the uterus was everted and much soiled. After being well cleaned with carbolic solution it was returned without much difficulty and the vulva sutured with thick twisted cord. These,

the cow soon bursted and the uterus was again everted. Returned a second time, a West's clamp was applied with a truss to reinforce it. An hour after the womb was out again. A third time attempt to relief was again frustrated and amputation decided upon. "This was done with the ecraseur, a thick twisted cord ligature having previously been put on, about two inches above where the cut was made. No hemorrhage; stump returned in the vagina; no further treatment; excellent recovery."—(*Veter. Journ.*)

Ovariotomy of a Vicious Mare [*Guy Sutton, M.R.C.V.S.*].—A sixteen-year-old mare has been very dangerous for several months. The right ovary was much distended and ruptured when passed through the loop of the instrument. For four hours after the operation she was still very ugly. On the third day she had become quieter. She presented no bad symptoms. So far she appears in good health.—(*Ibid.*)

An Interesting Radiograph [*By the Same*].—A Pekinese dog of two years will, when picked up, occasionally scream. A rod-like body is felt imbedded in the thickness of the triceps muscle. A few days later, the scapulo-humeral region is swollen and on pressure gives a crepitating sensation to the finger. Radiograph is taken and a small darning needle reproduced, lying in the triceps mucle, with the point slightly under the humerus and the eye about half an inch from the posterior border of the muscle. It was removed by a careful operation without complications, and good recovery followed.—(*Veter. Journ.*)

Jaundice Following Gastro Enteritis—Death [*Edgar Belcher, M.R.C.V.S.*].—The owner suspected his bull dog two years old, of being poisoned. He had frequent attacks of vomiting. He received castor oil and buckthorn. These had no effect. The animal lost flesh rapidly. When seen by the author, he presented the following symptoms: Skin and visible mucous membranes all bile stained yellow. Skin is harsh and tight to the body. Temperature is 100° F. Breathing normal. He, which was always of happy disposition, is now snappy and bad tempered. He was listless and did not like to be moved or touched. Treatment consisted in glycerine enemas, magnesia sulphate and carbonate and hot water baths. After a short appearance of improvement, he died. Post Mortem: Inflamed condition of the stomach, no enteritis, liver normal

in consistency but rather enlarged and infiltrated with biliary pigment. Other organs normal, except with the same coloration. Gall bladder distended with bile. No parasites in the intestines.—(*Ibid.*)

Some Clinical Notes on Cattle Diseases; Necrosis of the Tongue in Young Calves [*J. F. Healy, M.R.C.V.S.*].—This occurs in calves between three weeks and three or four months of age. Symptoms: Salivation, champing of the jaws, grinding of the teeth, areas of necrosis on the tongue. Treatment: Curetage, dressings of glycerine, carbolic or boric acid, tincture of iodine, laxatives.

A Form of Bovine Lymphangitis.—Observed in two or three-year-old bullocks, generally in June or July. Affects more the hind than the fore legs. A corded condition of the lymphatics run from above the hoof to the point of the hock, with small enlargements along their course, which feels like small "kernels" buried in the skin. As a rule a few burst near the hoof and suppurate, the others disappear. Generally amenable to simple treatment.

Occlusion of Preputial Orifice.—Relieved by urethrotomy a little below the ischial arch. Plenty of hot fomentations to the abdomen.

Malignant Catarrh or Gangrenous Coryza of the Ox.—In complicated cases, the author had to perform tracheotomy. He recommends steaming, injections of solutions of boric acid and also inhalations of oxygen gas.

Chronic Tympanitis—Rumenotomy.—In one case he removed a stone of sand. The second case he took out the placental membrane. In the third, an old frieze coat.

Subcutaneous Hematoma.—The author had several cases in cattle, in the region of the pectoral and scapular muscles. Do not lance them as severe hemorrhage may follow. Warm fomentations, stimulating liniments, puncture after one week's time. A seton through the tumor may answer also.—(*Veter. Journ.*)

Chylous Ascitis in a Cat [*Prime and Sons, M.R.C.V.S.*].—Cat castrated, when young, was fat and healthy; but now, he is nine years old, and for the past three weeks has lost flesh,

grown thin and presents symptoms of dropsy. Now his addomen is very large. He is tapped; the fluid that escaped is not straw colored but is like milk and free from smell. One and a half pints were removed. The animal was relieved. A week later the trouble had returned, the cat took pneumonia and was put out of trouble with chloroform. Unfortunately no post mortem was allowed by the owner.—(*Ibid.*)

FRENCH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Paralysis of the Sub-scapular Nerve in a Cow [*Mr. Bru*].—The animal has been lame on the right fore leg and the lameness has increased considerably after a walk of two kilometers to consult an empiric. When at home, the author saw her with the right shoulder lowered, hanging to the chest, the elbow has dropped down below the lower plain of the chest. The knee is bent in flexion, also the fetlock and the animal rests his foot on the toe only. Walking is very painful, percussion on the claws, reveals no pain, nor is any detected by various movements of the shoulder or heavy pressure on the scapula. The skin bears no marks of bruises, the leg is normally warm all over and the collateral artery of the digits beats the same on both legs. The next day after resting, the animal seems easier. Walking is better, bending of the joints has subsided. The leg is carried in adduction. The animal is made to walk and soon the symptoms return. The lameness is located in the shoulder region. There was no fracture, no dislocation, no muscular laceration, no swelling anywhere, no lesion of the circulation. There remains but a trouble of innervation to explain the symptoms and these correspond to those observed in horses in cases of paralysis of the sub-scapular nerve. Severe blister is applied. At first this seems to aggravate the trouble but after a few days, improvement was manifest and kept up until recovery. Atrophy of the scapular muscles however was rather tedious to subside.—(*Rev. Veter. Toulo.*)

Mitral Insufficiency in a Cow [*Mr. Bergeon*].—The symptoms presented by this animal were as follows: Large intermittent œdema under the abdomen, cold, painless and pitting under pressure of the finger. Pulse taken at the facial artery is very weak, at times intermittent. The hand pressing over the precordial region feels very irregular beatings of the heart, very quick at times and very slow afterwards. There is a true arythmy. After ten minutes walking the cow stops, out of breath, tongue hanging from the mouth, head carried low and extended. Respiration is much accelerated. Cardiac shock is felt very quick and strong. Venous pulse is well marked on the lower part of the jugulars. Auscultation of the lungs reveals nothing. That of the heart gives nothing characteristic. Tuberculin test is negative. Squill vinegar frictions, digitaline and coffee are prescribed. After ten days of this treatment, the cow seems to have improved. As there was some slight complications towards the uterus, treatment for them was prescribed. During several months she presented nothing particular except some irregularity in the beatings of the heart. But one morning she is taken again with symptoms much more severe. She has excessive anasarca, the chest, abdomen and the hind extremities are involved. Respiration is difficult and accelerated, mouth is wide open, mucous membranes are congested almost cyanotic; venous pulse. Temperature 38°. Mitral insufficiency is diagnosed. By request of the owner the animal is treated instead of being sent to the butcher. Bleeding at the jugular, mustard on the chest, digitaline, nux vomica, etc. Some little improvement is obtained. The animal lasted a few months and finally died suddenly. Post mortem: Abdomen contained large quantity of fluid. Digestive organs congested. Liver enlarged. Kidneys enlarged and congested. Thoracic cavity contains a little fluid. Lungs congested and œdematous. Pericardium normal. Heart enlarged with dilatation and hypertrophy of the right auricle and ventricle. Left heart normal. Mitral valve is thick and indurated on its borders, cordae tendinosae shortened and thick. The closing of the auriculo-ventricular opening is impossible.—(*Ibidem.*)

Curious Pulmonary Embolism [*Mr. Prevot*].—On April 2d, 1907, while making an injection in the left jugular of a horse, the canula of the syringe broke and the longest part of the instrument went in the vein. Nothing was done to find

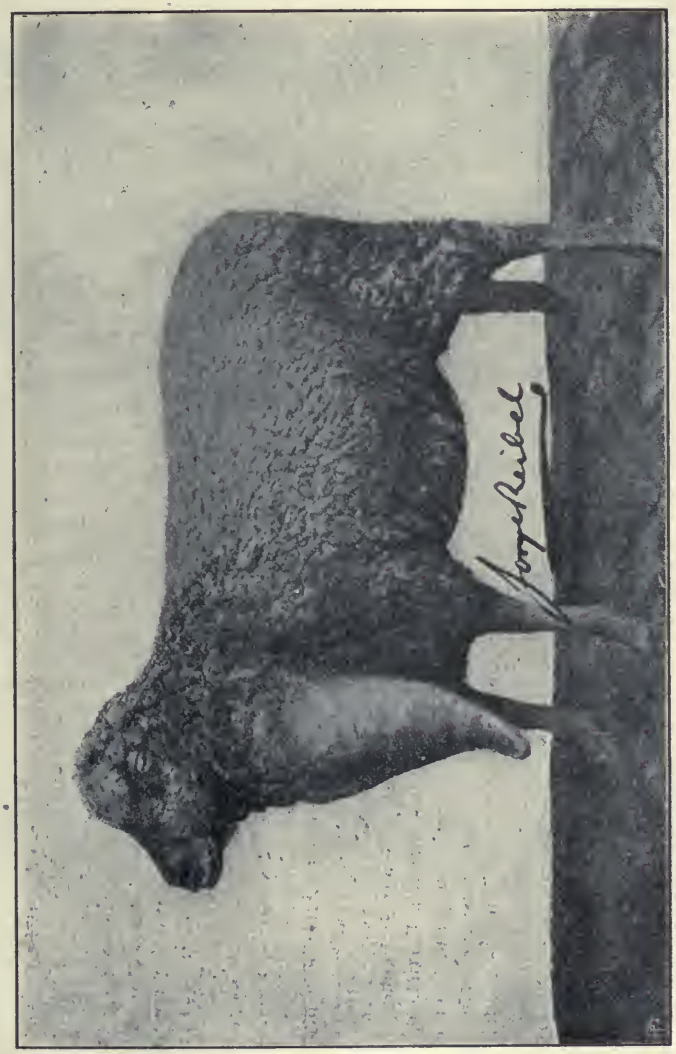
or extract it and the horse did not seem to mind it. The jugular remained soft and supple and several injections were made afterwards and blood taken from it without apparent disturbances. In September, 1908, the horse was destroyed. The post mortem was made at once and careful search made to find the trocar. The left jugular was carefully exposed and dissected. Nothing out of the way could be found. The heart revealed nothing. The examination of the pulmonary artery and its branches was also negative. Finally having made sections in the left lung very deep and close to each other, the canula was found in that lung, a short distance from the diaphragmatic surface. It was lodged in a small branch of the pulmonary artery where it had been stopped by the decreasing diameter of the blood-vessel. The piece of the canula measured eight centimeters in length.

The author has had already similar accidents three times. Two of the horses are dead. In one no post mortem was made, he had lived ten months. The second is the subject of this record. The third is still alive, in good condition and the accident has occurred eighteen months ago. These accidents have happened at place where various sera are prepared and among the horses used there for that purpose.—(*Bullel. de la Soc. Cent.*)

Curious Horny Growth in a Ewe [*Mr. Even*].—The author related the case as being observed by Dr. G. Reibel of Buenos-Ayres.

In a flock brought to a market was a ewe, which on the flat of the neck was carrying in front of the shoulder an enormous horn, hanging down, movable and which seemed to adhere only to the skin. It nearly reached the ground. On account of the weight, the animal was most of the time laying down and when standing carried the head and neck bent on one side. The horn measured at its base sixty-seven centimeters round, in its middle fifty and in its inferior third thirty-one. It was forty-seven centimeters long. At one time, there was some fluctuation at its insertion to the skin. This was tapped and grumelous pus escaped; the pus was washed out and tincture of iodine thrown in. About one litre of pus was taken off. The horn was finally amputated and after fifteen days the wound was re-

placed by a cicatrix having a horny appearance. After the amputation, a tissue rather adipous was found in the horn with a fibrous structure contained in a kind of thick, hard fibrous



stump adhering to the internal walls of the abnormal growth. —(*Semai. Veter.*)

Absence of Upper Incisives in a Horse [*Raoul Parent*].—While inspecting horses, the author examined a low-bred gelding, in good condition, with a perfect lower jaw of five years.

Externally there was no deformity of the lower extremity of the head, which would indicate the abnomally. In raising the lips and opening the jaws, the absence of the entire set of upper incisives was noticed and in their places there was simply a fibrous ridge, analogous to that of the mouth of bovines, slightly convex forward and not in contact with the lower incisives, which by want of rubbing were much longer and curved than normal. It looked like a parrot's beak turned upside down. There were no cicatrices nor the slightest mark of surgical interference and the owner who had the horse since its birth, said that the horse had always had that malformation and that up to that day nothing in its mode of eating had indicated that such condition existed. It undoubtedly was a congenital abnomally and the horse was brachygnathus superiorly.—(*Rev. Gener. de Medc. Veter.*)

ITALIAN REVIEW.

By Prof. A. Liautard, M. D., V. M.

Tumour of the Sinuses in a Horse—Plastic Operation [*Doct. D. Bernardini*].—Eight-year-old horse is brought to the Doctor on March 28th. His history is that for a month past he roars, has the left eye swollen and discharge from the nose on that side.

Examined, he presents an exophthalmia of the left eye, with perfect condition of the globe. In the middle of the left frontal bone there is a swelling, covered by skin which is hairless. Percussion reveals dullness all over the left frontal, maxillary and superior nasal surface. The left nasal cavity seems to be obliterated or at least allows but little air to pass with noise and manifestations of suffocation. A rhinoscopic examination is

useless for the diagnosis is certain, "A tumour in the sinuses." An operation was indicated and performed the 31st of March. To be able to expose the entire growth, it was necessary to trephine and open freely not only the frontal bone, but also the maxillary and the superior portion of the nasal cavity. The tumour involved also the superior turbinated bone, some portion of the ethmoid and extended to the internal face of the orbit. However the bony structures were not affected by the presence of the neoplasm. When this was removed, there remained a very large cavity which was treated according to the indications in similar lesions. Irrigations, antiseptic dressings, drainages, etc., etc. Every thing went well, except for the repairing process of the cutaneous wound. This remained rebellious to cicatrization and it was necessary to resort to a double plastic operation of two portions of skin taken in two places on the face, before the entire closing was obtained. When removed the tumour weighed 350 gramms and was made of sarcomatous tissue.—(*Clin. Veter.*)

An Obscure Case of Malaria in a Horse [*Doct. Icilio Lorenzetti*].—The writer was called one evening to see a fourteen-year-old horse, which, it was reported, passed red urine and appeared to be sick. As the history did not relate any condition of ailment and having found nothing peculiar, a more complete examination was postponed until the next day. On that morning the horse was found lively, head elevated, eyes well open and bright, and having a moderate appetite. Still the urine was red in color. There was no indication of pain anywhere. Auscultation revealed nothing. Respiration rather slow. Pulse regular. But while the temperature of the body seemed to be uniform, and normal the thermometer in the rectum registered 40.5°C. The conjunctiva were yellowish, the membrana nictitans had a few petechia. No pains in the hypochondriac region. No swelling of the extremities. The author was puzzled, and a positive diagnosis could not be made. Visiting the horse again some ten days after, with the exception that the pulse was a little raised, nothing different was observed. Analysis of the urine had revealed nothing abnormal. But at that time the thought struck Doct. Lorenzetti to have the blood examined with the microscope and he asked Professors of the school of Pisa to do it for him. It was reported that a large number of corpuscles were found with an endoglobular

parasite which was recognized as the Piroplasma Equi of Laveran. The diagnosis established sulphate of quinine was prescribed. This was given in drenches but the drenching was improperly done and the horse got broncho-pneumonia from which he died.—(*Clin. Veter.*)

Enormous Tendinous Thoroughpin Successfully Treated by Radical Operation [*Doct. D. Bernardini*].—The author writes that it is only during recent years that Prof. Lanzillotti has recommended the method of radical operation in cases of dilatation of the tendinous and articular synovial sacs and published several cases with the results that had been obtained. Then observing the objections and dangers that the operation may present and the condition in which complete success can be looked for. Dr. Bernardini relates with illustrations the following case:

A six-year-old mare is sold, as she is, for a very low figure; with the understanding that she will be able to do certain work. She is in good condition, has no defects of conformation, no appreciable lesions, except a double thoroughpin on the left leg. It is enormous (fig. A) and projects on both sides of the Tendo Achillis. Much more developed on the inside of the hock than on the outside; it starts from upwards at about ten centimeters from the point of the os calcis to downwards half way of the canon. The skin that covers it, is normal and its fluctuating consistency leaves no doubt as to its nature. The lameness is very slight. With hope to sell her with good profit, the owner is decided to submit her to any energetic treatment. She is thrown down, chloral injection is pushed through her jugular, and the hock aseptized as well as possible. A long incision is made through the skin lengthwise, on the superior half of the internal tumour, the walls of the dilated synovial are exposed and opened by a second incision made of the same size as the cutaneous. About one litre of synovia escaped, and left exposed a cavity with slender bands and clots of fibrine, more or less organized. The bands and clots being removed, a large opening was observed, situated under the Tendo Achillis, which established a communication between the outside and the inside pouch. Both cavities being thoroughly cleaned, flaps of the synovial sheath, semi ellipsoid in shape, were cut off and the edges sewn together with those of the skin which had been left intact. A drain tube was introduced in the upper

part of the wound, and brought out downwards by a counter opening made in the most dependent portion of the synovial sac. A slightly compressive bandage completed the dressing. The after treatment consisted in antiseptic injections of sterilized water and peroxide of hydrogen. In ten days, cicatriza-

Fig. A. Large Tendinous Thoroughpin.

Fig. B.

tion was far advanced. The drain was removed. The large thickening that had followed gradually subsided, and the resolution stimulated by actual cauterization with the results (Fig. B).—(*Clin. Veterinaria.*)

CIVIL SERVICE EXAMINATIONS.

CHIEF VETERINARIAN.

PHILIPPINE SERVICE.

The United States Civil Service Commission announces that applications will be received for consideration in connection with filling a vacancy in the position of chief veterinarian in the Philippine Islands, at a salary of $2,500 per annum.

No educational examination will be given for this position, but eligibility will be determined from the statements made under oath in application Forms 2 and 375, and upon any other evidence in the form of vouchers or otherwise that may be furnished.

No person will be rated as eligible who has not had veterinary experience of a high order along practical and executive lines. As no person having the qualifications desired was secured as the result of the examination held on August 31, 1908, for this position, qualified persons are urged to enter this examination.

Age limit, 18 to 40 years on the date of examination.

The medical certificate must be filled in by some medical officer in service of the United States. Applicants should appear before medical officers of the Army, Navy, Indian, or Public Health and Marine-Hospital Service. If such an officer can not be conveniently visited, a pension examining surgeon may execute the certificate. Special arrangements have been made with pension examining boards throughout the country to give such examination for a fee of $2, to be paid by the applicant. This certificate must not be executed by the family physician of the applicant. The medical officer should indicate his rank or official designation on such certificate.

Each applicant for the Philippine Service will be required to submit with his application a photograph of himself, taken within three years, which will be filed with his examination papers as a means of identification in case he receives appointment. An unmounted photograph is preferred. The date and name of examination, the competitior's name, and the year in which the photograph was taken should be indicated on the photograph.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply to the United States Civil Service Commission, Washington, D. C. No application will be accepted unless properly executed and filed with the Commission at Washington prior to the hour of closing business on March 10, 1909. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

Competitive examinations under the rules of the United States Civil Service Commission, for Veterinarian, Philippine Service, and Veterinary Inspector, Department of Agriculture, will also soon be held throughout the United States.

NOT WHOLLY PERSONAL.—A.—You have used the word "donkey" several times in the last ten minutes. Am I to understand that you mean anything of a personal nature? B.—Certainly not. There are lots of donkeys in the world besides you.

TREMENDOUS COST OF PRAIRIE DOGS.—In the state of Texas alone, prairie dogs eat annually enough grass to support 1,562,500 cows. Utterly useless, the little animal is a pest so dreaded that the forestry service has undertaken his extermination. Poison is killing him, wherever he now flourishes, and another resource of the farmer is safeguarded.

Who would think that the prairie dog, the shy and amusing little rodent that we like to watch before the door of his burrow at the "zoo," would ever become the subject of the government intervention or endanger the success of stockraising? Yet such is the fact. Out on the national forests which Uncle Sam is guarding for the use of the public, expert hunters have gone after the prairie dogs with zeal, ingenuity and poison, and literally exterminated them in great numbers, because some of the choicest bottom lands have had the grazing ruined for stock by the industrious burrowing of the "dogs."—(*Technical World Magazine.*)

SOCIETY MEETINGS.

OHIO STATE VETERINARY MEDICAL ASSOCIATION.

The twenty-sixth annual meeting was called to order by the President, H. Fulstow, in the veterinary laboratory of the Ohio State University, at 1.30 p. m., January 12, 1909. About thirty members answered the roll-call, but during the session the number was increased to sixty-seven, besides about forty visitors.

An address of welcome was delivered by Dr. D. S. White, of the O. S. U., which was responded to by Dr. E. H. Shepard, after which President Fulstow gave his address. Dr. G. W. Cliffe read the report of the Legislative Committee. The substance of the report was the reasons why the committee failed to accomplish anything in the way of new legislation.

The Committee on Designs for Membership, W. E. Clemons, Chairman, then reported. On motion the committee was instructed to purchase a sufficient number of parchment certificates.

Drs. R. J. Michener and F. F. Sheets made an extensive report on Veterinary Progress.

Drs. W. A. Axby and O. E. Hess gave an interesting report on Veterinary Diseases. Treasurer, Dr. T. B. Hillock, being absent, Dr. W. H. Gribble, Ex-Secretary, reported on the finances of the association. He reported that there was a difference between his accounts and those of the Treasurer. On motion Dr. Gribble was instructed to correspond with Treasurer Hillock and endeavor to straighten out the difference. Dr. S. D. Myers, Secretary, read a short report, after which came the election of officers.

The election resulted as follows:

Dr. W. H. Gribble, President; Dr. H. W. Brown, Vice-President; Dr. T. B. Hillock, Treasurer; Dr. S. D. Myers, Secretary; Dr. J. D. Fair, Censor.

Dr. H. W. Buck then read an interesting paper, What To Do, which was followed by an excellent paper by Dr. D. S.

White on Tuberculosis. The paper being, in part, a report of the International Tuberculosis Congress, Dr. White having been sent as a delegate to that body by this association.

Dr. W. B. Washburn then read his paper, Interesting Cases, which was true to title; this was followed by Dr. S. D. Myers with a report on the Results of the 1908 Clinic.

Dr. E. C. Limbaugh read an essay on Sarcoptic Mange, which was followed by Dr. B. C. Eldridge, My Experience with Indigo in the Treatment of Poll-Evil and Fistulous Withers.

We then adjourned to meet at the banquet hall of the Northern Hotel at 8.00 p. m.

The banquet was a success in every particular, seventy-five members and visitors surrounded the gorgeously decorated tables. After the coffee had been served, the association extended a vote of thanks to the local committee and to the management of the hotel. The literary programme was then again taken up. Dr. G. W. Cliffe read a well prepared paper entitled the Future Policy of the Profession. This was followed by a very interesting paper on Epizootic Lymphangitis by Dr. J. D. Fair. The Doctor gave an account of cases which he had met in his practice. Dr. C. H. Case then read an excellent paper, Resection of the Flexor Pedis Tendon for the Relief of Nail Wounds Penetrating the Navicular Bursae. The Doctor reported a number of cases which had been operated by him and his partner, Dr. J. F. Planz.

Dr. Sidney D. Myers presented a report on the Results of the 1908 Clinic * as follows:

Prior to this time no record has been kept of the cases operated at our clinics, therefore, the final results were not generally known so, with your permission, we will deviate somewhat from the former custom and give you a brief synopsis of each and the final result as far as we have been able to trace the case.

For this information I am indebted to the members of the clinic committee and especially to Dr. D. H. Udall.

No. 1. Fistula of the Lateral Cartilage—An eight-year-old bay gelding, weight about 1,000 pounds, condition fair.

History: Medium graded lameness in left front foot for several months, cauterization without results.

*For Report of Clinic see AMERICAN VETERINARY REVIEW, May, 1908, Vol. XXXIII., page 218.

Symptoms: Pronounced parachondral phlegmon over medial side of the left front foot, swelling hard and painful, at the center of the swelling a fistulous canal passed forward and downward in the direction of the lateral cartilage, small amount of pus being continuously discharged from the fistula. Ring formation and thickening of the hoof capsule at the inner quarter (chronic hyperplastic pododermatitis).

Treatment: January 14th the field was prepared and the entire foot was enclosed in an antiseptic bandage. January 15th, the animal was restrained with English trip hobbles, anaesthetized with chloroform, and locally with alypin.

Bayer operation performed by Dr. W. A. Axby; assisted by Dr. J. F. Planz.

Complications: A double horn wall, and a quarter crack which passed to the pododerm resulting in its destruction over an area corresponding to the crack. The cartilage was removed by slicing it off in small strips instead of splitting through the middle and removing anterior and posterior halves. The foot was dressed in the usual manner.

Result: January 27th, a slight decrease in the grade of lameness; pulse, temperature and respiration have remained normal. The bandage was removed as the upper margin of the tar bandage seemed to cause an irritation of the skin. The operative wound was not swollen and was healing with very little suppuration, applied tannin with no bandage. The wound was dressed in this manner daily with an occasional application of a moist creolin pack to relieve itching and irritation. An ointment of aloes was applied to keep the animal from biting the wound. Case discharged February 10th. March 15th, the owner reported the animal in fine condition. April 20th, the animal is still slightly lame, but lameness is apparently due to the fact that a firm hoof capsule has not yet had time to form. Owner is pleased with the results.

No. 2. Melanoma-fibroma—A seven-year-old grey percheron mare, weight about 1,100 pounds, condition fine.

History: About eight months ago two firm swellings about the size of a walnut on the anterior thoracic region near the jugular groove. These swellings gradually enlarged to a firm swelling about the size of a man's fist.

Symptoms: A large, firm, painless swelling located in the region of the left prescapular glands. The swelling is elongated and feels about the size of a man's fist.

Treatment: The field of operation was shaved and disinfected, restrained patient with English trip hobbles and anaesthetized with chloroform.

Operation by Dr. W. A. Axby; assisted by Dr. J. F. Plantz. An incision about eight inches long was made over the tumor and parallel to both the tumor and the jugular vein. The swelling was enucleated by alternate use of scissors and fingers, being careful to ligate all blood vessels with which it was abundantly supplied. On the medial side of the tumor a groove corresponding to the jugular vein extending its entire length. The wound was packed with bichloride gauze and retained with skin sutures.

The tumor was a melanofibroma, twice the size of a man's fist and shaped like a flat oval. At the end of fifty-two hours the pack was removed, the wound was irrigated daily with creolin, followed occasionally with an injection of a ten per-cent solution of chloride of zinc. By the 10th of February the swelling had become resorbed and the wound exudate had entirely ceased and the animal was discharged. Recovery was complete.

No. 3. Cicatricial Granuloma—Patient a bay driving mare in fair condition, weight about 1,100 pounds.

Symptoms: A cicatricial granuloma about the size of the palm of a man's hand was located on the oro-lateral surface of the left hock. Surface rough, no secretions.

Treatment: The animal was restrained with the English trip hobbles, anaesthetized with alypin. Operated by Dr. J. F. Planz; assisted by Dr. W. A. Axby. The tumor was removed to the level of the skin, and the surface cauterized deeply with cherry-red irons.

Result: Animal discharged January 28th, no swelling or wound exudate up to this time, surface of wound gradually decreasing in size. Recovery, doubtless, complete.

No. 4. Spaying cat—Median line—Surgeon, F. E. Anderson; assistant, W. B. Washburn. Result: Recovery.

No. 5. Spaying bitch—Median line—Surgeon, F. E. Anderson; assistant W. B. Washburn. Result: Recovery.

No. 6. Tumor—Mammary gland—Bitch—Surgeon, W. B. Washburn; assistant, F. E. Anderson. Result: Recovery.

No. 7. Fistulous Withers—Patient a grey percheron mare, in good condition, weight 1,300 pounds.

History: The animal has been unsuccessfully treated by the owner for the past six months.

Symptoms: Fistulous opening is present dorsal to the left scapular cartilage, abundant discharge of creamy pus, slight swelling over left withers.

Treatment: The animal is restrained with the English trip hobbles. Operation by Dr. J. L. Axby; assisted by Dr. F. E. Anderson. The fistulous opening was enlarged to allow the entrance of the hand, and the indurated tissue around the margin of the wound was dissected away. There was then recognized a large cavity behind the scapula which extended downward and forward a distance of ten inches, the anterior border corresponding to that of the scapula, while the posterior of the cavity was about five inches deep and corresponded to the posterior border of the scapula. The dorsal spines were freely exposed and found to be necrotic. Drainage was provided by making a vertical incision through the cervical trapezius and underlying muscles anterior to the scapula. After removing the necrotic portions of the spines, the cavity was tightly packed with bichloride gauze and retained with skin sutures.

The wound was irrigated daily with a 2% solution of creolin and occasionally injected with a 10% solution of zinc chloride also with equal parts phenol and tincture of iodine.

The animal was discharged on March 18th. The wound was closing rapidly and the animal rapidly regaining her flesh.

At the last account the wound was discharging only a small amount of pus, and it is supposed she eventually recovered.

No. 8. Splint—Patient a grey draft gelding. Animal was point fired by Dr. W. E. Clemons and was taken home by the owner. The result is not reported.

No. 9. Ringbone—The patient was an eight-year-old dun mule in fair condition.

History: Has shown a slight degree of ringbone-lameness for the last six months.

Symptoms: Small circular bony swelling at the coronary joint of the left hind limb, degree of lameness slight.

Treatment: The patient was restrained with the side-line hobble, anaesthetized with alypin, point-fired and blistered. Surgeon, Dr. W. E. Clemons.

At the end of a month recovery from lameness was complete, regardless of the fact that directions to give the animal

complete rest were partially disregarded. At about this time the mule was led forty miles over a muddy road, at the end of the trip he was very lame. The lameness improved with rest but became worse again when the animal was worked at a plow. At the end of ten weeks he was at work but the lameness and swelling were markedly increased. The animal would doubtless have recovered under proper after treatment.

No. 10. Roarer—Patient a bay gelding, weight 1,000 pounds, animal used for light driving.

Treatment: The animal was restrained with the side-line hobble, anaesthetized with chloroform, and the Williams operation performed by Dr. J. H. Blattenburg; assisted by Drs. H. Fulstow and W. B. Washburn.

Result: The operation seemed to be successful for a time but, at least reports the animal was going bad.

No. 11. Knuckling—Tenotomy performed by Dr. J. H Blattenburg; assisted by Dr. H. Fulstow.

No. 12 and 13. Bilateral Stringhalt and Navicular Disease—Light driving horse in fair condition.

Alypin was injected over the plantar nerves of both front legs and portions of the nerves were removed with the animal in the standing position. In a similar manner the peroneal tendons were separated for the relief of stringhalt. Operator Dr. W. E. Clemons.

No. 14. Fistulous Withers—The patient a bay gelding ten years old, weight 1,000 pounds.

Treatment: The animal is restrained with the English trip hobbles. Operation by Dr. J. H. Blattenburg; assisted by Dr. F. E. Anderson.

Result: A complete recovery.

Nos. 15 and 16. Spaying—Two cows, previously condemned for tuberculosis, spayed by Dr. H. Fulstow. One operated through the flank and the other through the vagina.

Result: One died suddenly, post mortem, negative. The other recovered.

No. 17. Tumor—Horse. External metatarsal region. Animal cast. Surgeon, Dr. E. H. Callender.

Result: Not reported.

No. 18. Long molars—Horse. Projecting teeth cut off by Dr. E. H. Callender.

Result: Not reported.

No. 19. Empyema of Maxillary and Frontal Sinuses—Patient a black gelding, weight about 1,000 pounds, in fair condition. Animal was trephined by Dr. J. H. Blattenburg; assisted by Dr. F. E. Anderson. The diseased tooth was not repelled at the clinic because of lack of time. This was driven out later by Dr. D. H. Udall and the animal eventually made a good recovery. The latter part of June the animal was returned and the corresponding tooth on the opposite side was found to be carious and was also repelled.

No. 20. Stringhalt—Tenotomy. Animal cast. Surgeon J. E. Thomas. Result:

No. 21. Melanoma-sarcoma of the Sheath—Patient an aged grey gelding, weight about 1,400 pounds.

Animal was cast and operated at the clinic. After a few days it was discovered that the tumor as not removed in its entirety and that a second operation would be necessary. After this was done the patient recovered.

Nos. 22 to 25.—Were cases that were presented for examination only.

Dr. W. H. Gribble offered an amendment to the constitution. The Auditing Committee, Dr. W. E. Clemons, made a report, and the bills of the association were allowed.

On motion the association adjourned to meet at the stock-judging pavilion, Ohio State University, at 7.30 a. m., January 13.

The meeting was called to order by the President, H. Fulstow, at 8.00 a. m. The Board of Censors reported favorably on the application for membership of H. E. Dilatush, F. B. Jackson, W. H. Redhead, Herbert Skeels, Karl Kolbe, I. J. Brobeck, C. F. Ward, A. C. Dunlap, J. E. Stansburry, H. S. Boggs, C. J. Williamson, H. S. Murphey, A. J. Wolf, G. H. Lasher, W. H. Emig and Tip Queen, and these gentlemen were duly elected. The in-coming officers assumed their duties and the association took up the Clinic. The Clinic, from all accounts, was a grand success. The demonstrations lasted from 8.30 a. m., until late in the afternoon. The Committee having provided a lunch for the noon-hour so that no time was lost. We are not in a position to give a more detailed account of the Clinic at this time, but, we hope to be able to do so at a later date.

SIDNEY D. MYERS, Secretary.

NORTH DAKOTA VETERINARY ASSOCIATION.

The seventh annual meeting convened in the recitation room of the Veterinary Department of the Agricultural College at Fargo, N. D., on January 19, 1909, at 9 a. m., with President B. C. Taylor in the chair.

The president's address was on the benefits of the association, and its relation to the profession of veterinary science. Twenty members answered roll call.

Minutes of the last annual meeting were read and approved. There being no unfinished business of any importance the following committees reported:

Committee on Diseases—By W. F. Crewe, State Veterinarian, outlining the work done by the Live Stock Sanitary Board in the last year.

Committee on Membership—By E. J. Davidson, qualification and registration of applicants relative to by-laws, etc.

Committee on Legislation—By J. W. Robinson, relating to passage of bill in last Legislative session creating a Live Stock Sanitary Board, and act indemnifying for the loss of horses destroyed by glanders.

Committee on Finance—By J. W. Dunham, describing the improved condition of the association funds, due to the rapidly increasing membership.

Committee on Programme—By C. H. Martin, complimenting the members on their promptness and assistance in contributing to the annual programme.

Committee on Banquet—By J. W. Dunham, considering the prompt response and willingness of the members to participate, he advised making this an annual affair.

There being several applicants absent by delayed trains, admission of new members and election of officers was postponed until the afternoon session, and papers and discussions were in order.

The first paper was read by W. F. Crewe, on *Mycotic Lymphangitis*. He described several cases that he and members of the Bureau of Animal Industry had diagnosed and treated. On account of its close resemblance to Farcy he laid great stress on the mallein test as a diagnostic agent. Drs. Robinson and Smith described cases they had seen, and a general discussion followed by a majority of the members present.

D. Fisher read a paper on *Adrenalin Chloride,* reporting several cases of azoturia where he had excellent results. Discussion was very lengthy by all members.

Dr. Van Es cited where he had used it in operations on mucous membranes with good results. Dr. Davidson had good results of its use in diseases of the eye, especially in canine practice.

The meeting then adjourned until 1.30 p. m.

Meeting called to order by President Taylor at 2 p. m.

The following applications for membership were presented: Ernest Schneider, Kulm, N. D.; C. H. Babcock, New Rockford, N. D.; S. S. Westgate, Russell, N. D.; E. J. Walsh, Willow City, N. D.; T. G. Kenny, Bismarck, N. D.; Jos. E. Carter, Fargo, N. D.; L. A. Benson, Rolette, N. D.; Geo. Davidson, Rugby, N. D.; J. W. Jackson, Souris, N. D.; J. F. Sylvester, Langdon, N. D.

After being vouched for and endorsed by the membership committee, they were admitted under suspension of the rules.

The election of officers being in order, the following were elected for the following year: President, W. S. Stinson, Grafton, N. D.; Vice-President, J. B. Campbell, Larimore, N. D.; Secretary, C. H. Martin, Valley City, N. D.; Treasurer, D. Fisher, Grandin, N. D.

The reading of papers was then resumed.

Hog Cholera and its Management, by L. Van Es. This was a very thorough and interesting paper, describing the immunizing process at the station, method of procuring serum, its application and results in the various herds in the State the past summer; he also exhibited and demonstrated some very interesting post mortem specimens, showing the lesions of the disease. Discussions by Drs. Robinson, Crewe, Smith and Davidson.

B. C. Taylor read a *report of a case* in a cow, where the skin of the neck and shoulders was distended with air, where he could find no puncture or wound for its admission. On posting the animal he found a ruptured lung and a fracture of one of the rings of the treachea. Discussion by all the members.

J. W. Robinson reported a case of *puncture and open joint,* of the stifle, describing the line of treatment and results.

This was generally discussed by all members present, and Drs. Schneider, Cliff, Crewe and Van Es gave their treatment and results, in cases of infected bursa and joints.

R. C. Cliff read a paper, *Wounds of a Fistulous Nature,* and described his treatment and results of the injection of turpen-

tine. Discussed by Drs. Taylor, Schneider and Davidson, giving their various results in the same line of treatment.

E. J. Davidson reported some cases of *Purpura,* and informed us that he had excellent results in using Adrenalin Chloride as one of the medicinal agents. Discussion by all the members.

New Business.

The Board of Directors of the North Dakota Agricultural College having decided to establish a four year course in Veterinary Science, Dr. Van Es gave us an explanation and outline of the work in each branch of the course, which was approved and endorsed by the association.

It was moved and seconded that a committee of three be appointed to draft resolution to report on the following day (carried).

President Taylor appointed the following: Drs. Van Es, Smith and Crewe.

It was moved by Crewe, seconded by Robinson, and carried, that a committee of three be appointed to be known as a Veterinary Institute Committee, to have authority to procure subjects and material for the clinical work at the next annual meeting, and to procure experts in each branch of the clinics to direct the same.

It was moved by Smith, seconded by Dunham, that one hundred and twenty-five dollars ($125) of the association funds be contributed for the expenses of the Institute Committee (carried).

The meeting then adjourned until next day at 11 a. m.

At 8 p. m. the association met in a body at the Gardner Hotel, where covers were laid for thirty-five, and a sumptuous repast was partaken of. After cigars had been passed Dr. Dunham was chosen toastmaster, and after dinner speeches contributed to by President Worst of the Agricultural College, Professor Richards of the College, and Mr. Donnelly of the Live Stock Association, who were guests of the Veterinary Association at the banquet; short speeches were also made by Drs. Crewe, Van Es and Dunham.

A 9 a m., January 20, the association convened at the operating room of the Veterinary Department, where a few examinations, a post mortem and minor operations were conducted by Dr. Van Es.

At 11 a. m. the meeting was called to order, with President Stinson in the chair.

Under the head of new business a discussion was brought up relative to the mallein and tuberculin tests, the reaction, elevation of temperatures, etc., and the scale fees to be charged for same. Discussion was taken part in by all members present, and it was moved and seconded, that a committee of three be appointed to meet at some centrally located place within thirty days to draw up a schedule of fees to be charged in making these tests, and the secretary to furnish each member a copy of the committee proceedings.

It was also moved by Davidson, seconded by Fisher, that the association pay the actual expenses of the members of this committee (carried).

A subject was then brought up regarding illegal practitioners in our State, which was thoroughly discussed by all members present, and it was the consensus of opinion that a Prosecuting Committee should be appointed, and each member should report to the committee of any illegal practice in their respective districts.

It was moved by Fisher, seconded by Van Es, that a committee of three be appointed (carried).

President Stinson then called for a report of the committee on resolutions, by Dr. Van Es, chairman.

Resolutions Passed at the Seventh Annual Meeting of the North Dakota Veterinary Association.

Whereas, It is the sense of this association that the work of the State Board of Veterinary Medical Examiners has resulted in the continual improvement of the profession, in the prevention of frauds, and,

Whereas, Those labors tend to place at the disposal of the live stock interests of the State a more efficient professional service, be it

Resolved, That this association express its approval of and satisfaction with the work of this board and the continued enforcement of the law.

Secondly.

Whereas, This association has received intelligence of the establishment of a four year course of veterinary medicine and surgery at the State Agricultural College, and,

Whereas, After a careful examination of this course it is the sense of this association that the projected plan will constitute a factor in the uplifting of the profession, and,

Whereas, The association realizes the lack of facilities for the proper training of veterinarians in the Northwest, be it

Resolved, That this association heartily endorses the action of the Board of Trustees of the Agricultural College, and that said Board of Trustees be commended for their favorable consideration of the demand for an advanced veterinary education.

Thirdly.

Whereas, This association has from its incipiency rendered its influence for the promotion of efficient live stock sanitation, and,

Whereas, It is the sense of this association that by the enactment of the measure providing for the establishment of the Live Stock Sanitary Board, the foundation was laid for the rational control of contagious diseases of live stock, and,

Whereas, The labors of said Live Stock Sanitary Board have resulted in a marked decrease in the financial loss caused by such contagious diseases of domestic animals as the board have been able to deal with, and,

Whereas, The lack of funds prevented said Live Stock Sanitary Board from extending their labors toward the eradication of other dangerous contagious diseases, be it,

Resolved, That this association hereby signifies its approval of any measure which has as its object to so increase the present appropriation of said board so as to enable it to fully comply with the demands for the proper protection of this great industry.

Fourthly.

Whereas, It has come to the notice of this association that in one of our most progressive cities the office of municipal dairy inspector has been placed in the charge of a non-veterinarian, and,

Whereas, By evidence on hand and common repute the veterinarian heretofore in charge of said work has rendered most efficient services, and,

Whereas, The representatives of the veterinary profession, by their vocation and education are the only profession especially fitted for this kind of work, be it,

Resolved, That this association express its disapproval of such a selection, be it further

Resolved, That it is the sense of the association that by entrusting such an important office to a non-veterinarian the great object of milk sanitation is largely defeated.

Fifthly.

Whereas, This association is cognizant of the great efforts made for the general suppression of bovine tuberculosis, and,

Whereas, It is the sense of this association that a systematic campaign against this disease in the State can be most economically undertaken in the near future, be it,

Resolved, That this association lend its aid and active support towards the enactment of a measure creating an ample fund for the purpose of the carrying out of free tuberculin test of cattle belonging to citizen residents in this State.

Sixthly.

Whereas, There is an abundance of evidence that the rational control of infectious and contagious diseases of animals, in many instances, cannot be carried on without the aid of vaccine, sera, and other bacteriological products, and,

Whereas, It it is apparent to this association that the time has come for such products to be placed at the disposal of the live stock industry of this State, be it,

Resolved, That this association heartily endorse a measure for the establishment of a serum institute at the State Agricultural College for the manufacture and free distribution of those agents.

It was moved and seconded that the treasurer deposit so as to draw five per cent (5%) interest on the association funds for the ensuing year (carried).

The following committees for the ensuing year were appointed by President Stinson.

Prosecution—Smith, Davidson and Taylor.
Banquet—Dunham, Van Es and Carter.
Diseases—Crewe, Walsh and Cliff.
Finance—Taylor, Winsloe and Chisholm.
Legislation—Smith, Robinson and Cusack.
Resolutions—Van Es, Davidson and Campbell.
Programme—Martin, Babcock and Sims.
Membership—E. J. Davidson, G. Davidson and Benson.
Institute—Van Es, Crewe and Davidson.
Mallein and Tuberculin—Crewe, Van Es and Martin.

A vote was taken as to the next place of annual meeting and Fargo, N. D., was the unanimous choice.

The meeting then adjourned until the next annual meeting subject to call of the secretary.

C. H. MARTIN, Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting for January was held at Donaldson's Hall, Broad and Filbert Streets, Philadelphia, on January 12, 1909.

The president, Dr. John Reichel, occupied the chair. The attendance consisted of fifteen members and ten visitors.

The Committee on Legislation through its chairman reported the successful prosecution in Reading of a case to determine the legality of any one but a registered veterinarian to practice veterinary dentistry.

The feature of the evening was a paper by Dr. C. J. Marshall on "Some of the Hereditary Unsoundness of the Horse."

Dr. Marshall stated that his paper was largely the result of his studies, following his appointment by the Breeders' Association of Penna. to investigate in co-operation with two breeders what should constitute transmissible unsoundness in horse-breeding. The purpose of this investigation was to determine what legal regulations might appropriately be taken to control or prevent the use of undesirable breeding stock in Pennsylvania. He observed that the more he studied the subject and the more he consulted reports, the more difficult it was for him to arrive at a conclusion which would be safe and reliable, and yet not hamper or unduly restrain the enterprise.

All that listened to the paper commended Dr. Marshall on the discretion with which he treated the subject, and, though there were very many differences of opinion on certain points touched on in the paper, everyone was more than ever convinced that the subject needed the careful and persistent study of the veterinary profession.

As a result of this conviction, a motion was made to appoint a permanent committee of three which should in every way possible stimulate inquiry along these lines, gather

statistics and compile evidence. The several members of the Association were urgently requested to forward to this committee any data on this subject which they might gather in the course of time.

Dr. T. Earle Budd, a member of the New Jersey Live Stock Commission, who recently returned from a trip to Europe along with Commissioners Ephriam T. Gill, of Haddonfield, N. J., and Frederick C. Minkler, of New Brunswick, N. J., reported some of his observations in the breeding establishments abroad. He was fully convinced of the absolute necessity of some legal regulation of breeding as the paper of the evening suggested, and he looked forward to the time when such regulations would be carried into effect in all the States.

Dr. Benjamin E. Underhill in discussing the paper laid very strong stress on the importance of faulty conformations, these to his mind constituted more serious hereditary defects than visible unsoundness.

Dr. J. McDonough, of Montclair, N. J., emphasized the fact that faulty shoeing was perhaps more than any one thing responsible for the development of abnormalities of gait and conformation which could gradually be perpetuated by breeding.

Mr. Ephriam T. Gill, of Haddonfield, N. J., gave a resume of the policy that was being pursued in New Jersey to improve the horsekind. The State was stationing desirable types of sires in different localities where such would not conflict with established stud farms. By this means it is hoped that the breeders of all sections of the State will be able to put their brood mares to stallions of high-class type and pure blood.

The meeting adjourned at 11.15 p. m.

The regular monthly meeting for February was held on February 9, 1909, at Donaldson's Hall, Broad and Filbert Streets, Phila.

In the absence of the president the chair was occupied by Dr. A. W. Ormiston.

There were fifteen members and several visitors present.

On the motion of Dr. H. W. Hoskins the Association requested the Board of Directors to draw up resolutions of sympathy to be forwarded to the relatives of its two recently deceased members, Dr. Walter L. Hart and Dr. Chas. M. Cullen, both of Philadelphia.

The next monthly meeting of the Association would give place to the annual meeting of the Penna. State Veterinary Medical Association and in view of this fact the Association instructed three of its members to act in its behalf and do all in their power to make the coming meeting of the state association as helpful and popular as possible.

The applications for membership of Drs. Walter McHenry, P. F. Murphy and Lewis B. Horner were received and referred to the Board of Censors.

The papers of the evening were:

1. "Penetrating Street Nail," by Dr. S. J. J. Harger.
2. "Subcoronary Abscess," by Dr. J. W. Adams.
3. "Mud Fever," by Dr. Hiram W. Eves.

The first paper was ably handled by its author, who illustrated clearly from diagrams the several anatomical regions involved by such a term and the surgical mode of treatment in each case, when such procedure was deemed necessary.

The second subject having been assigned to the author he remarked in introduction that the term "Subcoronary Abscess" was really a misnomer, and that it would be more accurately designated "Phlegmon of the Coronet," for there was seldom, if ever, a circumscribed area of suppuration.

The author reviewed the anatomy of the region involved and dwelt upon the histology of the area in as far as it had a bearing upon helping the surgeon to estimate the gravity and location of the involvement, and then concluded, by a graphic description, of the method of surgical relief.

Most cases are thought too lightly of in their preliminary stages and for this reason surgical relief is often ineffectual because it is too long delayed.

The paper on "Mud Fever," by Dr. Hiram W. Eves had to be postponed for the hour was late and adjournment voted.

S. Lockett, Secretary.

VIRGINIA STATE VETERINARY MEDICAL ASSOCIATION.

The midwinter session of the above association was held in Richmond, January 8, 1909. This was decidedly the most enthusiastic meeting held in years. All the members seemed to be awakening to the great possibilities before them, realizing that the profession is moving upward with tremendous strides, and

the fields of usefulness widening in the same proportion. Since the city, state and federal governments are taking such decisive stands regarding the milk and meat production we realize that there is great need for trained veterinarians in securing healthful and sanitary sources of these staple articles of food.

We were very glad to welcome back our former comrade and co-worker, Dr. Chas. McCulloch, who for several years has been unable to attend the meetings. Dr. Frazier Smith's genial countenance also shone in our midst; he, too, has not been able to meet with us for some time. Surely it is gratifying to have them back with us and may circumstances always favor us with their presence.

Several members who were faithful attendants, always taking an active part in the work, have been missed for some time; we will be glad to welcome them back to ranks and hope they may make it convenient to meet with us in July at Hampton, Va., where a special program will be rendered.

After the reading and adoption of the minutes, the following gentlemen in strong, bold voices, signifying their delight, responded to roll call: Drs. H. Bannister, Geo. C. Faville, W. T. Gilchrist, Chas. McCulloch, H. S. Willis, J. G. Ferneyhough, Ed. Ferneyhough, Thos. Frazier, C. H. Epps, Frasier Smith, W. Vaughn Lloyd, R. R. Clarke, E. P. Wood, H. H. Adair and W. G. Chrisman. The first order of business was the report of the Board of Censors, which recommended the following gentlemen for membership: Dr. R. E. Ferneyhough, Warrenton; Dr. W. A. Coyner, Winchester; Dr. J. P. McDonough, Richmond.

This report met with the approval of the association and the gentlemen were cordially received.

The second feature of business was the report of the treasurer, which showed a balance of $61.

According to our custom it was time to elect officers, the result is as follows:

President, S. C. Neff, Staunton, Va.

Vice-President, J. G. Ferneyhough, Burkeville, Va.

Second Vice-President, Chas. McCulloch, Howardsville, Va.

Secretary and Treasurer, W. G. Chrisman, Charlottesville, Va.

Under the head of new business, a motion was made to have a permanent Committee for Programme. The Chair appointed on this committee Drs. McCulloch, Bannister and Faville. These

gentlemen, recognizing the importance of their duty, called a meeting at once and arranged the following programme:

Programme for Meeting to be held on July 9, 1909.

After the regular order of business:

A paper by Dr. Clark on Some Features of Modern Surgery, No. 25.

A paper by Dr. McCulloch on a Comparative Study of Ophthalmia, No. 15.

A paper by J. G. Ferneyhough, The Relation of the State to the Eradication of Tuberculosis, No. 30.

Reports of Cases, by Dr. Frazier, Dr. Bannister, Dr. Gilchrist.

Upon the motion of Dr. McCulloch, which was duly seconded, the secretary was directed to furnish the journals and leading newspapers notices of the date of the meeting of the association, with a copy of the programme and an invitation to the M. D. physicians and general public to attend same. Also that a copy of the minutes of the last meeting be sent each member of the association at least two weeks prior to the meeting, and request that he have same published in his city or county paper.

This ending the business part of the meeting, several very interesting papers were read and discussed. Dr. H. H. Adair, of Newport News, read an interesting paper, The Gangrenous Udder of a Cow, which was discussed by Drs. Bannister, Willis and Clarke. Dr. Clarke, of Hampton, reported a case of tapeworm in hog.

Adjourned to meet at Hampton Normal Institute, Hampton, Va., July 9. 1909.

W. G. Chrisman, Secretary.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting was held in the Board of Trade Rooms, Reading, Pa., December 16, 1908. The meeting was called to order by the president, Dr. Kohler, at 10.30 a. m.

Under roll call the following members responded: Drs. Huyett, Bieber, Kohler, Gruber, Noack, Longacre, E. D. Longacre, W. S. Weber and Harper. Visitors were: Dr. Geo. R. Fetherolf, Reading; Dr. John W. Adams, member of the faculty, Veter-

inary Department, University of Pennsylvania; Dr. W. Horace Hoskins, member of State Examining Board, and J. J. Kinney, New York.

The president delivered a short address. The minutes of the previous session were read and approved.

Dr. Fetherolf, Reading, was proposed for membership by Dr. Bieber, and upon a motion by him and seconded by Dr. Kohler, he was declared elected a member.

The secretary having read a number of communications, the president called for reports of delegates. As delegate to the Keystone Veterinary Association, Dr. Noack said he had attended the last meeting and that an important subject discussed there was that all veterinarians making private tuberculin tests in the State had to send in an accurate report of their work to the board.

Delegate American Veterinary Medical Association, Dr. Adams, being called upon, he remarked that being the last sessions were held in Philadelphia most of us had been down, and that many new things could not be brought up, but referring to the clinics, he said: It seems to me some improvement should be made as they are usually conducted; they prove not very instructive because often many of the operators chosen, being not competent men to perform them properly, often do an operation in a manner that is no credit to themselves, nor the audience, who always expect to see an operation skilfully performed, thus arousing criticism, as these operations should be performed in the latest and best improved method.

He suggested that a better plan would be to have an operation performed at such clinics in a good, capacious amphitheatre, and select a competent operator, who goes about his work in a business-like way, explaining every detail of the operation, while he prefers this method to another, this drug to another, etc.

Upon Dr. Adams' remarks, Dr. Noack said he himself felt opposed to clinics at all at these organizations, but as they fill the purpose of a great drawing card to such sessions, have them, but they should not be conducted by a reception committee, as is usually the case at the sessions of the American Veterinary Medical Association.

Papers.

"Influenza, Complicated by Purpura," by Dr. Harper. He reported a number of interesting cases and claimed very good success with his method of treatment. He related his experience

with a complete choke in the horses, etxending from the pharynx to the stomach, and proved upon autopsy to consist mostly of hay and straw.

Dr. Kohler read a splendid paper upon "Obstetrics." This subject was well discussed.

The subject of choke was again taken up. It was stated that there was absolutely no treatment for a complete choke, of a fibrous nature, though arcoline was highly recommended for most cases of choke, impaction, etc. Dr. Adams again taking the floor, related a number of interesting cases, (*a*) of a cat swallowing a large sized lady's hatpin; (*b*) a case of symmetrical fracture of the ileum in a fourteen months' old colt, produced from a slip en route on a ship; (*c*) also a case, cat, where the owner insisted that the pet cat had swallowed some glass and a poker chip. The doctor treated the case for muscular rheumatism and the animal speedily recovered.

He furthermore explained his favorite method of operating in amputation of the penis in the horse. He says, you often get stricture two or three months after operation in remainder of penis.

Foot and mouth disease was also well discussed by the body of veterinarians.

A motion was made by Dr. Longacre, E. D., and seconded by Dr. Bieber, that the secretary draw up resolutions relative to the new meat and milk inspection law for the city of Reading, before council, and send a copy to the mayor, instructing him as to the necessity of appointing a competent veterinarian to that office, and that this organization highly recommend the name of Dr. Geo. R. Fetherolf for said office.

The meeting adjourned at 5 p. m.

W. G. Huyett, Secretary.

ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

The above association held its twenty-first annual session January 27th and 28th, 1909, at the Sanitarium of Dr. S. H. Swain, in Decatur.

It was one of the best attended and most enthusiastic meetings ever held by this organization.

President F. J. Bliss, of Earlville, called the meeting to order at one p. m., on the 27th and the roll call was responded to by a goodly number of the membership.

The minutes of the previous meeting were read by the secretary and approved by the association.

The treasurer's report showed a nice balance on hand in the treasury.

Election of officers was then held with the following result:

President—Dr. F. J. Bliss, Earlville.

First Vice-President—Dr. N. P. Whitmore, Gardner.

Second Vice-President—Dr. S. H. Swain, Decatur.

Treasurer—Dr. V. G. Hunt, Arcola.

Secretary—Dr. W. A. Swain, Mt. Pulaski.

President Bliss then appointed standing committees for the ensuing year as follows:

Committee on Legislation—Dr. J. W. McLean, of Neoga; Dr. J. W. Marsh, of Illiopolis, and Dr. R. Commens, of Rose Hill.

Board of Censors—Dr. S. D. Brown, of Assumption; Dr. W. J. Martin, of Kankakee and Dr. T. W. Corkery, of Urbana.

Committee on Program—Dr. F. J. Bliss, of Earlville; Dr. W. A. Swain, Mt. Pulaski and Dr. S. H. Swain, of Decatur.

Committee on Arrangements—Dr. V. G. Hunt, Arcola; Dr. C. A. Hurlbutt, Stonington and Dr. A. C. Tillman, Earlville.

Dr. L. W. Archer, of Garrett, was then nominated and elected to membership after which the following program was carried out in detail:

2.00 p. m. "Suppurative Lymphangitis," Dr. V. O. Hanes, Stanford.

2.30 p. m. "Dystokia," Dr. S. L. Sheidecker, Sycamore.

3.00 p. m. "Adrenalin in Veterinary Practice," Dr. R. W. Brathwaite, Champaign.

3.30 p. m. "Abortions, Causes and Complications," Dr. N. P. Whitmore, Gardner.

4.00 p. m. "Influenza and its Complications," Dr. V. G. Hunt, Arcola.

4.30 p. m. "Shoulder Lameness, Articular and Muscular," Dr. J. R. Pray, Minonk.

5.00 p. m. "Peronial Tenotomy in Treatment of Stringhalt," Dr. W. J. Martin, Kankakee.

5.30 p. m. Reports of Cases.

6.00 p. m. Banquet.

Thursday, January 28, 1909.

8.00 a. m. "Colics and Their Treatments," Dr. R. Commens, Rose Hill.
8.30 a. m. "Leucorrhoea," Dr. C. A. Hurlbutt, Stonington.
9.00 a. m. "Prolapsus of Uterus," Dr. I. M. Luzader, Nokomis.
9.30 a. m. "Hypodermic Medication in Veterinary Practice," Dr. S. D. Brown, Assumption.
10.00 a. m. "Naval Ill," Dr. John Tyrrell, Mackinaw.
10.30 a. m. "Epithelioma and Treatment," Dr. J. W. Marsh, Illiopolis.
11.00 a. m. "Antiseptics in Treatment of Wounds," Dr. T. W. Corkery, Urbana.
11.30 a. m. "Umbilical Hernia," Dr. V. O. Hanes, Stanford.

Under the head of reports of cases some very interesting cases were reported and discussed at length.

This organization holds annual and semi-annual meetings in January and August of each year which are well attended and enjoyed by those in attendance.

W. A. Swain, Secretary.

ALABAMA VETERINARY MEDICAL ASSOCIATION.

The following is a brief report of the recent revival of the Alabama Veterinary Medical Association.

The old association that was organized back in the nineties died from neglect after two or three annual meetings.

A call was sent out to all the graduate veterinarians in Alabama to meet at Auburn, Ala., December 20, 1907, and organize a new association. On that date an organization was effected after some quibbling over the adoption of a constitution and by-laws, with or without a code of ethics. Finally the code of ethics was omitted and Dr. A. H. French, of Birmingham, was elected president.

The first annual meeting of the association was held at Birmingham, June 16 and 17, 1908. Most of the members were royally entertained by Dr. A. H. French, and a very interesting clinic was held at the hospital of Drs. French and Jackson, Drs. Fleming, Jackson and Cary performing neurotomy, tenotomy and quittor operations, and all members participating in diagnosis of cases of lameness.

The reading of papers and discussions were held in City Hall. E. M. Duncan, City Milk and Meat Inspector, of Birmingham, read an exhaustive paper on Sanitary Regulation of Municipal Milk Supply.

Dr. W. D. Staples read a fine paper on Inflammation.

Dr. G. W. Browning, How to Distinguish the Texas Fever Tick from Other Ticks.

Dr. S. H. Saul read a paper on Tuberculosis in the Cow. He also gave a talk on Treatment of Colics in the Horse.

Dr. A. H. French led a discussion on Shoeing. Dr. C. Daly discoursed on Tetanus. Dr. M. F. Jackson reported cases of Rheumatism, Bone Spavin and Periodic Ophthalmia. Dr. C. A. Cary presented a paper on Epizootic Lymphangitis. Dr. I. S. McAdory read a paper on Gonitis. Dr. T. J. Jackson reported a case of Rupture of the Stomach and a quick death following a draft of cold water.

The association adopted the same code of ethics as found in the American Veterinary Medical Association by-laws. Dr. A. H. French was re-elected president. Dr. W. D. Staples was elected vice-president, and Dr. C. A. Cary, secretary-treasurer.

C. A. Cary, Secretary-Treasurer.

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

The twelfth annual meeting was held at Rochester, January 7, 1909. Meeting was called to order by the president, Dr. John W. Corrigan. The following members were elected directors: Drs. J. E. Smith, A. Geo. Tegg, Edward H. Nodyne, J. E. Payne, W. B. Switzer, John O. Moore, D. P. Webster, J. H. Taylor, John W. Corrigan, Warren E. Stocking. A recess was taken for luncheon. Upon reconvening at 2 p. m. the directors reported the election of officers for the ensuing year as follows:

President, J. E. Smith, of Webster, N. Y.; Vice-President, John O. Moore, of Wilson, N. Y.; Secretary, J. H. Taylor, of Henrietta, N. Y.; Treasurer, A. Geo. Tegg, of Rochester, N. Y.; Censors, Edward H. Nodyne, J. E. Payne, W. B. Switzer, D. P. Webster, John W. Corrigan, Warren E. Stocking.

Applications for membership were received from Alfred J. Tuxhill and R. Perkins, of Warsaw, which were duly referred to the Board of Censors. The name of Prof. V. A. Moore was presented for honorary membership and also referred to the Board of Censors.

The newly elected president, Dr. J. E. Smith, then took the chair. The following papers were read:

"Contagious Pneumonia in the Horse," by Dr. J. W. Corrigan.

"My Experience with Foot and Mouth Disease," by Dr. H. S. Beebe.

"Four Cases of Acute Indigestion" treated with arecolin and barium chloride, by Dr. W. B. Switzer.

"The Veterinarian as a Sanitarian," by Nelson N. Lifler.

"City Meat and Milk Inspection," by Dr. Edward H. Nodyne.

Meeting adjourned for dinner after which the meeting was called to order. Prof. V. A. Moore spoke of the work of the State Veterinary College, at Ithaca, what it was doing to assist the veterinarian in combating diseases in the lower animals. He urged the veterinarian to take a more active part in sanitary work of all kinds and said there should be a veterinarian a member of every board of health. The meeting continued until nearly midnight, the time being taken up with exceedingly interesting discussions on the various subjects suggested by the papers and by Prof. V. A. Moore's remarks.

J. H. Taylor, Secretary.

WASHINGTON STATE VETERINARY MEDICAL ASSOCIATION.

There has just been organized in this State an association known as the "Washington State Veterinary Medical Association." The first meeting was held at the Butler Hotel, in Seattle, on January 13, 1909.

There were twenty-eight veterinarians present. Officers for the ensuing year were chosen as follows: Dr. J. Hilton (C. V. C.), president; Dr. F. C. Erles (C. V. C.), Rosalia, vice-president; Dr. J. T. Seely (C. V. C.), secretary and treasurer. Board of Censors, Dr. S. B. Nelson (G. S. C.), Dr. Phillips (W. S C.), Dr. Harrington (W. S. C.).

A constitution and by-laws were drafted. In order to be eligible to membership one must also be eligible to the A. V. M. A., and approved by the Board of Censors.

The following were present—Dr. O. Hartnagle, Dr. G. Swingley, Dr. D. Harrington, Dr. F. E. Smith, Dr. Baynes, Dr. Richard Hickingbottom, Dr. R. Hickenbottom, Dr. G. F. Sheppard, Dr. W. H. Kydd, Dr. F. A. Nief, Dr. E. J. Drake, Dr. J. Hilton, Dr. C. Cozier, Dr. A. L Taylor, Dr Kellum, Dr. J. T. Seely, Dr. H. S. Weeks, Dr. E. T. Whitlow, Dr. S. B. Nelson, Dr. Phillips, Dr. S. T. Miller, Dr. Phinney, Dr. C. Boyles, Dr. Elles, Dr. Patric, Dr. Gelchrist, Dr. A. Robillard, Dr. A. H. Fehr.

After adjournment a banquet was enjoyed in one of the private dining rooms of the Butler, and a very enjoyable evening was spent by all, at which every member voted to boost for the upbuilding of the W. S. V. M. A.

J. T. Seely, M. D. C.,
Secretary and Treasurer.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

The regular monthly meeting was called to order by the president, Dr. John Lockwood, at its regular meeting place in Washington, D. C., on January 20, at 8 p. m.

Besides a large number of regular members present, the association had the pleasure of entertaining Drs. Sesco Stewart, of Kansas City; Glover, of Fort Collins; McKillip and Frazier, of Chicago; Shuh, of Grand Rapids, and Gage and Turner of the United States Army.

Several of these gentlemen made short addresses, speaking principally of the different associations of the United States and their work.

Dr. H. Young was the chief speaker of the evening making an interesting and instructive talk on Dairy Inspection, as practiced in the District of Columbia.

The most important business of the meeting was the annual election of officers, which resulted as follows: Dr. A. M. Farrington, president; Dr. Jno. Rome, vice-president, and Dr. M. Page Smith, secretary.

M. Page Smith, Secretary.

NEWS AND ITEMS.

NEARLY one-half of the meat supply of the country does not come under federal inspection.

THE students of the New York State Veterinary College held their annual banquet on February 26th.

THE Board of Directors of the North Dakota Agricultural College has decided to establish a four-year course in veterinary science.

THE ARKANSAS VETERINARY SOCIETY held its annual meeting on February 1, 1909. Time and place of next meeting subject to call of the Chair.

THE Colorado veterinary practice act has passed third reading in the House and our colleagues in Colorado are hopeful of its final passage at this session of the Legislature.

Dr. A. G. FISK, of Glenwood Springs, has associated himself with Dr. A. P. Drew, of Grand Junction, Col., whose extensive clientele and well filled hospital makes such an arrangement mutually beneficial.

THE Finance Committee of the Colorado Legislature has reported favorably on an appropriation for a new veterinary building for the Veterinary Department of the Colorado State College of Agriculture and Mechanic Arts.

THE annual dance of the Epsilon Chapter of the Alpha Psi Fraternity at Houston Hall, University of Pennsylvania, Philadelphia, on the evening of February 23d, proved to be one of the most enjoyable social events of the season.

Dr. M. H. REYNOLDS, of Minnesota, recently gave evening addresses on "Milk, Clean or Unclean," at Denison, Iowa, and Fort Dodge in the same state, at the latter place under the auspices of the Iowa State Association meeting.

The Indiana Veterinary College will "break ground" about the middle of March for their new building, which will be 70 x 130, and comprise a modern hospital, a new bacteriological laboratory, a large lecture room, a clinic room, and an amphitheatre for stock judging.

At the annual meeting of the B. A. I. Veterinary Inspectors' Association, held at the Pathological Laboratory, Forty-second and Halsted streets, Chicago, Ill., on February 12th, officers were elected as follows: President, Dr. E. W. Barthold; Vice-President, Dr. Young; Secretary-Treasurer, Dr. D. D. Tierney.

The State Legislature of Colorado visited the Colorado Agricultural College in a body February 27th. A special train was furnished by the student body. Refreshments were served at the noon hour at the college, after which automobiles were provided to show the visitors over the campus and college farm.

South Dakota in Line.—An act to regulate the practice of veterinary medicine has just passed the Legislature of South Dakota. Dr. J. A. Graham, Sioux Falls, Secretary of the State Association, says the law is a good one, that it contains a five-year clause, and that applicants for examination have to be graduates of a three-year college giving instruction at least twenty-six weeks each year.

Death of Dr. Chas. E. Cullen.—Chas. E. Cullen, V.M.D., graduate University of Pennsylvania, Veterinary Department, class "1887," died in Philadelphia, February 4, 1909, from acute Bright's disease. He was forty-five years old and leaves a wife and four children. He enjoyed a lucrative practice and for many years was active as a member of the public school board in his district. He was a member of the Pennsylvania State and Keystone Veterinary Medical Associations.

McNair-Service Wedding.—An interesting society event at Berkeley, California, was the wedding of Dr. Frederick H. McNair, city veterinarian of Berkeley, and Miss Ida Irene Service of the same place, which occurred on the evening of the last day of the old year. The bride is well known in North Berkeley society where the Service family have long lived. Dr. McNair is a native of New York and a graduate of Cornell University. Dr. and Mrs. McNair are "At Home" at Berkeley, California.

Dr. B. F. KAUPP, Veterinary Department of the Colorado State College, Fort Collins, was unable to attend the semi-annual meeting of the Missouri Valley Veterinary Association, of which body he is secretary, held at Kansas City, February 2-3, because he was at the time undergoing treatment made necessary on account of an accidental injury to his hand which occurred while holding an autopsy on one of his experimental rabbits dead of rabies. The treatment has been successful.

MAY BREED SICK CATTLE.—In an opinion to State Commissioner of Agriculture Pearson, Attorney General O'Malley holds that the amendment adopted last year to the agricultural law, authorizing the State Commissioner to make experiments to determine the best methods to prevent the spread of bovine tuberculosis, gives the Commissioner the right to buy cattle suffering from tuberculosis and to breed from them, so as to determine whether the offspring of such cattle are sound or are affected by tuberculosis.—(*N. Y. Herald.*)

THE second annual banquet of the Delta Chapter of the Alpha Psi fraternity was held at the Coates House, Kansas City, Mo., February 3, 1909. The after-dinner speeches were enthusiastic and upon topics appropriately selected by the toastmaster, Dr. Clifford Carter.

The chapter has a membership of fifty-eight, 36 active, 12 graduates, and 10 honorary members. The honorary members are: Drs. L. R. Baker, R. F. Eagle, A. T. Kinsley, R. P. Lyman, Arthur Trickett, D. B. Leininger, S. L. Stewart, H. E. Kingman, I. Newson and Lee Sanger.

THE results of cases presented at a clinic should invariably be reported at a subsequent meeting for the benefit of those interested, but, strange to say, this important part seems to be generally neglected by those who conduct clinics at our association meetings. This is a keen disappointment to many. The Ohio State Veterinary Medical Association, however, makes a most noteworthy exception in this matter of general neglect by presenting at its recent annual meeting a record of each and every case of the 1908 clinic, giving a brief synopsis of each and the final result, which may be found in this number of the REVIEW, page 759.

Modification of Foot-and-Mouth Disease Quarantine. —The Federal quarantine on account of foot-and-mouth disease has been still further modified by the Secretary of Agriculture, effective February 25, and the territory under quarantine has been considerably reduced so as to include only the particular townships in which the disease existed, together with certain adjoining townships. The territory remaining under quarantine is now as follows: In Pennsylvania, the entire county of Philadelphia, including the city of Philadelphia, and portions of the counties of Berks, Bucks, Center, Clinton, Columbia, Dauphin, Chester, Delaware, Juniata, Lancaster, Lehigh, Lycoming, Montgomery, Montour, Northampton, Northumberland, Snyder, Union and York; in Michigan, portions of Macomb, Oakland and Wayne counties; in New York, portions of the counties of Erie, Genesee, Monroe, Niagara, and Orleans; and in Maryland, District No. 6 in Carroll County and District No. 6 in Baltimore County.

Live stock may be shipped interstate from these areas for immediate slaughter after having been inspected and certified by the Bureau of Animal Industry, subject to permission of State authorities at destination. Live stock intended for other purposes may be moved interstate from these areas only upon permission of the Secretary of Agriculture and under such restrictions as he may impose in each case. Hides, skins, and hoofs removed since January 1, 1909, which have not been in contact with hides, skins, or hoofs removed prior to that date, may be moved interstate without disinfection or certification, subject to permission of State authorities at destination. Hay, straw, and similar fodder may be moved interstate from the quarantined area only upon certification by the Bureau of Animal Industry.

All portions of Pennsylvania, New York, Michigan, and Maryland other than the area above mentioned are released entirely from the Federal quarantine, and interstate shipments of live stock, hides, skins, hoofs, hay, straw, etc., may be made without restrictions except such as may be imposed by State authorities at destination.

This modification of the quarantine has no practical effect at the present time on export shipments to Great Britain, as the British quarantine against the entire four States named remains in full force, and even if shipments from those States were allowed to be made from the United States they would not be permitted to land at British ports.

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